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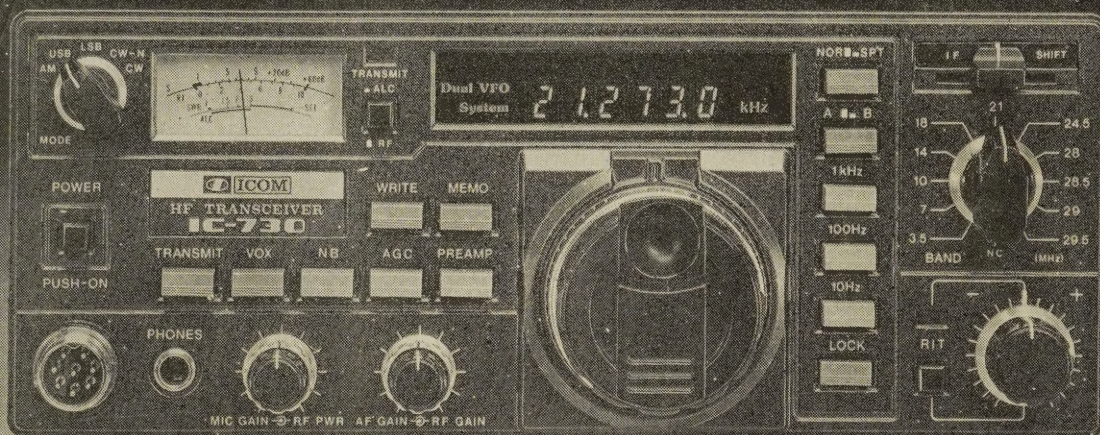
The Interim Amateur Radio Advisory Council

THE QUEST FOR UNITY GOES ON

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THIS ISSUE

The Interim Amateur Radio Advisory Council (IARAC) is almost two months old now. Like the nursling that it is, it could hardly get up on its own. This must be understandable. But for it to be somewhat "malnourished" is another story. Associate Editor Alfie Camua-Sy tries to delve into the causes of the council's slow growth. *The Interim Amateur Radio Advisory Council, The Quest for Unity Goes on While a Race of High Horses Rages* (page 8) is already quite revealing despite journalistic restraints adopted by the writer.

While hams nationwide seem to be agog over developments at IARAC, in Cebu, youthful ham-leaders DU7VT and DU7ANZ continue to enjoy undivided support from their "constituents." TAR Writer Frank Sallena provides a significant glimpse at how these young leaders steer such a reputable organization as the Cebu Amateur Radio League (CARL). *A Trace of History, A Feel of the Future* (page 16) is a heartwarmer.

TAR had a rare opportunity to conduct an interview with a balikbayan amateur radio enthusiast. It was a fortunate encounter, to say the least, for the interviewee happens to be a two-time American CW-copying champion. *CW-Copying Champ Wants McElroy's Mark Ripped* (page 13) by Felipe Jose B. Peralta also discloses how N2ESJ wishes to beat McElroy with 80 wpm which he wants to consistently achieve during practice sessions.

One of the more respectable hams in the land today hails from the Visayas. A well rounded professional engineer and a FAO consultant Ricardo Hechanova, DU6RH, honors the pages of this humble magazine with *Notes on Determining the Direction of Arrival of Radio Waves* (page 11). Heavily technical, the item would provide a very challenging copy for technical hams steeped in solving south-north paths related difficulties and enlightenment for beginners who couldn't understand yet how radiowaves are thrown into the ethereal vastness and into their portas.

Engr. Cielito Vita of SHARE in Sorsogon also contributes some notes on the workings of WARC '84 (page 18) held in Geneva, Switzerland and how SSB was regarded as a broadcasting medium in that conference.

TAR Correspondent Raffy Soliongco mailed in an item on Intruder watching (page 19) and poses the question on whether hams should police their bands despite having acquired them with exclusivity.

Read on! There's a lot more inside.

COVER: The April blaze came with the intensity of a clown's presence, claiming both the mood and the passion of the season. And the local hamdom, as seen through the eyes of Julio Viernes and Paul V. Nar was gripped by the pervasiveness of the clown's craft or the sun's ceremonies. And from a not-too-comfortable shade they holed in and eventually came up with the cover the meaning significantly veiled by the fever of summer. Oh yes, Paul V. Nar came down too with a fever, and to cool himself, got hitched. ♦

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What distinguishes amateurs from professionals and businessmen is that they don't work "to make money" but pursue their activity "por amor al arte" and "gratis et amore."

— Dr. Edmundo Reyes, DU1OR

BAND **TO** BAND

Reconciliation is fast becoming too common a term. In the process it generates different shades of meanings — some colloquial, some hifalutin, others esoteric. Reconciliation has thus become a victim of capricious word users.

But for whatever may happen to the word — abused or misused — we are inclined to feel that nothing is anomalous for usage may only be as dynamic as the dynamism of a language. And certainly, as dynamic as the activity it represents.

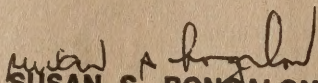
Wrapping up all ends, the formation of the Interim Amateur Radio Advisory Council (IARAC) may somehow come out to be an effort at reconciliation. A reconciliation of the myriad strands of ham interests which for sometime now have divisively polarized enthusiasts into factions.

The formation of IARAC is essentially a process as reconciliation is, to iterate. Both would then have unity as a net result.

Although unity is still rather far from being achieved even as IARAC already starts to assume a definite character, the mere existence of the council, shaky and fledgling as it is, presents to be a signal achievement.

Certainly, reconciliation is, traditionally, a painful process as IARAC also has its equal share of concomittant birth pangs: some guys have to give up so much with some others relishing on such misfortune.

And for whatever faults IARAC may have suffered from conception to its present state, it is our feeling that its mere being here is a silver lining, so to speak, upon which all well meaning hams can build up hopes for better hamming days. ♦


SUSAN S. BONGALON
Publisher-Editor

THE AMATEUR RADIOWORLD is a monthly magazine published in Legazpi City for the advancement of amateurism. Editorial and business offices are located at Room 24, PVLB Building 1, Peñaranda Street, Legazpi City, Tel. Nos. 35-36, 21-43 and 24-03.
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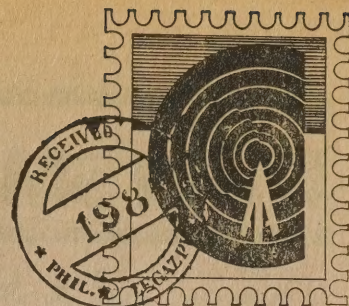
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HAM EVENTS ON PAPER

One of the best events that ever occurred in the contemporary history of amateurism in the land is the coming out of **The Amateur Radioworld**. Amateur radio may, indeed, be a mere hobby but hams have certainly contributed many laudable services to the community not to mention their fast becoming traditional roles during emergencies.

With **The Amateur Radioworld** promising to be a vigorous chronicler of ham events, amateurism have but one place to be: the hearts of men.

Congratulations to the staff. Keep up the good work.

Relson L. Cordero, DU1RLC
Metro Manila

THUMBS UP, ALFIE

Kindly allow me to thank Associate Editor Alfie Camua-Sy for his write-up about "Papa Tiger" in your March, 1984 issue. I feel wonderful with that piece.

Happy Easter to all of you.

Bing Bornasal, DU1BLB
Valenzuela, Metro Manila

NIGHTMARES AND EGO TRIPS

It is hard to understand how amateur radio being a "mere hobby" can polarize, so to speak, some erstwhile good friends. Its dynamism is something which perhaps makes it hard to operate on set patterns or is it essentially because some hams are firm believers of their own greatness (or otherwise, as the case may be)? A case in point is the formation of the

Interim Amateur Radio Advisory Council. Apparently, PCARS and PARA are at loggerheads as to who should have the dominance over the affairs of the interim council which was created at the instance of NTC, afterall. Here, we see how ego works as we also see how the NTC steers clear from any controversy. Given these factors, amateur radio is not definitely, any Tom Dick and Harry's version of a hobby.

I wish every ham in the land who now fancies amateur radio other than what it really is, will soon wake up and take the amateur's creed more sincerely.

Atty. Edna B. Roa, DU4EBR
Legazpi City

IN THIS CORNER

How about a products/services review corner in your wonderful mag? Particularly, it will sort of be a great breakthrough if such reviews will concentrate on locally manufactured gears, accessories or whatever.

Erning Ala
Legazpi City

(We'd been mulling over this idea for some time already. However, we realize some constraints. As soon as we'll be able to find solutions to these constraints such a corner will be immediately set up. Please bear with us. Thanks. — Ed)

Capiz Radio League, Inc.

District VI

YAESU MUSEN WRITES

We have read the February and March 1984 issues of your magazine with great interest and we believe that **The Amateur Radioworld** is an excellent publication which is sure to cause additional growth in both the quality and quantity of amateur radio operators in the Philippines.

Edward J. Coan
Manager
Public Relations Department
YAESU MUSEN CO., LTD.
Tokyo, Japan

WASTED CHANCE

What would have happened if DU1GF and DU1SA were able to QSO with astro-ham W5LFL? One thing though, it would mean a celebration. It would have been a singular feat for Philippine hams. But as it happened, some of our fellow hams or some bootlegging "repeater boys" (?) wanted nothing of that kind to grace the pages of Philippine ham history. At any rate, I find the attempt of the two grand old hams glorious enough and your account of the "DX in Space" event substantial (TAR, March 1984).

Joe Chavez
Guinobatan, Albay

LETTERS TO THE EDITOR (P.O. Box 76) should be addressed to THE AMATEUR RADIOWORLD, P.O. Box 76, Legazpi City, Albay, Philippines, 4901 and should include the writer's full name, address. Letters may be edited for purposes of clarity of space.

A Summer Ham Affair

BARRL HOSTS INVITATIONAL FIELD DAY; FIRST IN BICOL

Camaraderie and goodwill among local hams and elsewhere is intended to be given a big boost by the Bicol Amateur Radio Relay League (BARRL) when it stages an Invitational Field Day.

The activity, deemed to be the first ever to be conducted in this district, will test the mettle of participating hams in DXing, CW proficiency and antenna efficiency.

BARRL president Jun Balce, DV4AV, bared to *The Amateur Radioworld* that the Field Day will try to encourage and improve amateur radio service through friendly competition which will emphasize skills development in amateur radio communications both as a science and a technology.

Under the DX contest, DV4AV said that only foreign contacts will be credited and that only HF will be utilized on 10, 15, 20, 40 and 80 meters. On CW proficiency, he said that each

club will be represented by two members who will tackle prepared tapes done by an expert commissioned by the League. Antenna efficiency will be tested with four-element (and below) single antenna; eight-element (and below) single antenna; four-element (and below) twin antenna; eight-element (and below) twin antenna. Only home-brews will be entertained.

Fishing and air rifle shooting contests will also highlight the affair which is slated on April 28 and 29 this year at the Fishersman's Hut in Bacon, Sorsogon.

In a separate interview, Field Day chairman, Dr. Jose B. Tolentino, DV4AD told this magazine that interested radio societies should have filed their application forms in order to officially join the Field Day not later than April 22 and remit a fee of ₱300 per radio club. Venue of this activity is adequately furnished with cottages and amenities ideally suited for such a summer ham affair. ♦

(SMART). DW4BC and Mr. Liao immediately moved about their municipality to seek confirmation or denial on the report received by DU1AR's friend. In the process they were joined by Rene Carillo (DW4RFC) of Legazpi City and also of the SMART.

It was soon found out that the report was true. A seven-year old male child of the Peñaflor family in Matacon met a fatal vehicular accident near the Matacon Elementary School building. The kid died on the spot in that accident.

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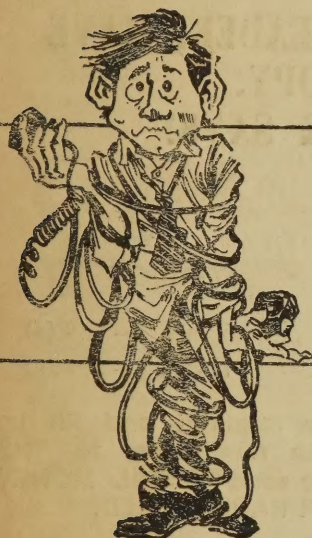
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dial. Steel cabinet with carrying
handle and whip antenna. Used
and in good condition.

HALLICRAFTERS S-53A 8-tube
communication receiver. 6BA6
RF amplifier; 6BA6 Mixer; 6BA6
IF; 6H6 Det/AVC; 6SC7 AF
ampl/BFO; 6C4 Osc; 6K6/6V6
audio output; 5Y3 Rectifier. Tubes
6H6 and 5Y3 has been replaced
with more efficient diodes. For
SSB reception, a product detector
stage is needed and easily added by
utilizing the space occupied by 6H6
stage. Gray metal cabinet with
hinged top cover. Made in USA.
Frequency coverage is from .55-
mhz to 30-mhz; 50-mhz to 54-mhz
calibrated in 5-bands. For 110-
volts AC only.

Four (4) pieces high-glazed porce-
lain stand-off insulators used in
transmitter antenna output connec-
tions. Ribbed cone-shaped body,
square base with 4 mounting holes
on each corners. Long leakage
path, low capacity and freedom
from moisture absorption. Screw
with nut on tip of cone. Height in-
cluding screw is 5-inches. Size of

CLASSIFIED EXCHANGE

ADVERTISING RATES CLASSI-
FIED EXCHANGE): P9.50 per line,
P39.00 per column centimeter boxed
ad. Special discount for long-run-
ning ads.

base is 2-3/8 by 2 1/2 - Made in USA
by E. F. Johnson - Brand new.

Two (2) pieces ceramic socket (Mil
spec no. 123-209-200/RCA UR-
5424) to fit type 866, 866A, 866-
AX, 866-B, 816, 836, 3B28; 4-pin
heavy-duty rectifier tube socket.
Heavy ceramic base with silver
plated contacts. Made in USA by
E. F. Johnson. Brand new.

Twelve (12) pieces screw type ce-
ramic base socket (MOGUL type
G2-3) will fit or accept Tungar/
Gordos Argon/Mercury rectifier
bulb such as: G-23, G-26, G-44,
G-48, G-49, G-83, G-6314, G-
6401, etc. Removed from cinema
arc rectifier units. Good condition.

Two (2) pieces used Tungar bulbs
type GORDOS 6401/G-83, rated
at 15-amperes, 60-volts DC. Fila-
ment voltage is at 2.5 volts AC.
Originally used in old-model bat-
tery chargers cinema arc rectifier
units. All removed from recondi-
tioned equipments. Require socket
type MOGUL G2-3 (see item no.
26) Good condition and usable.
Socket is not included.

Assorted printed circuit tube soc-
kets for standard 7-pin and 9-pin
tubes. Made in USA, brand new.

Home-made battery charger for 4-
volt DC electronic photo flash bat-
tery (PIC and others). Primary is
for 220-volt AC; secondary 4-volts
DC terminated with terminal lugs
for direct connection to battery ter-
minals. All parts enclosed inside
metal case, while the transformer is
mounted outside (on top).

9-volt transistor battery charger
and eliminator. Runs any 9-volts
radio, cassette, etc. with this con-
verter. Doubles as a battery char-
ger (9-volts only) by using adaptor
supplied. For 220-volt AC; same
size as regular 9-volt rectangular
transistor battery, such as: (2U6;
216; VS323; 006P; 1222; etc.)
Used, good condition.

Home-made Capacitor Checker —
exact copy of circuit used on Allied
(US) Knight kit model 83Y119 Ca-
pacitor Checker. It's designed to
test capacitors for shorts, or open
circuits without disconnecting them
from the circuit. These test can be
made even though the capacitor is
in parallel with a resistance as low
as 50-ohms. Short circuit test up
to 2000-mfd; open circuit test 20-
pf or higher. Tubes complement:
6E5 as Magic Eye Indicator; 6C4
as Hartley Oscillator. With test
lead, instruction manual, aluminum
cabinet size: 4x5-1/4x4 For 220-volts
AC.

Power transistor sockets for type
TO-3 case power transistor like
OC26; 2N255; 2SB449, etc. No
need to solder directly to transistor
terminals. With a socket installed,
transistors easily removed without
unsoldering - no mess no waste of
time. Made in USA, brand new,
about 15 pieces still available.

Two (2) pieces 20-mfd at 600-volt
can type electrolytic capacitor made
in USA by Cornell Dubilier. Size:
1-5/16 x 4-1/4 height. Plug-in type
and will fit any standard octal
(8-pin*) tube socket. Brand new.

Four (4) pieces 2000-mfd at 15-
volt can-type electrolytic capacitor
made in USA by Sprague. Size:
1-5/16 dia. x 5" long. Plug-in
type and will fit any standard octal
(8-pin) tube socket. Brand new.
Three transistor experimenter's cir-
cuit board. This delightful and use-
ful experimenter gadget should ap-
peal to one and all. It is multi-
functional and will perform the
following by merely connecting
your telegraph key, speaker, mike
and 9-volt battery to color-coded
wires, you have your simple Morse
code oscillator, AM voice broad-
caster, sensitive AM radio receiver.
Fully assembled, ready for use,
with hook up instruction and dia-
gram. A fantastic gadget, one
which young and old experimenters
will enjoy for hours. Made in Ja-
pan. All parts are mounted on a
printed circuit board, like - 3
transistors; 2 miniature transform-
ers; 1 oscillator coil; 1 tuning con-
denser; 1 rotary function switch; 1
antenna ferrite coil; assorted re-
sistors, capacitors and a diode.
Used, in good condition.

**CONTACT: Frank Sallena
c/o The Amateur Radioworld**

*This council of ham - leaders,
according to the Memo - Circular,
"shall prescribe the rules and
regulations in the conduct of its affairs
subject to the approval of NTC."*

Alfie Camua-Sy

To fully understand the organizational system upon which local amateur radio enthusiasts conduct their national undertakings is somewhat like facing the task of untangling the proverbial Gordian Knot.

Principally, the difficulty is embedded in the heterogeneity of interests which is further qualified with stubbornness which makes it doubly hard to intelligently sort out and streamline every consequential strand of concern fundamental to the establishment of symmetry or well defined structures.

Aside from these varying interests which could not be made to meet even at compromise points, there are still a number of extraneous forces that interplay creating a kind of dynamism that makes amateur radio more than a hobby.

Thus, the task of setting up a viable singular national organization as deemed appropriate by the regulating government agency, the National Telecommunications Commission, becomes sort of a travel by a backroad whose conditions are dictated by the weather; dusty when hot and muddy when wet. Either way, there is always discomfort.

But because there is, precisely, an order to form a singular national organization, efforts are being expended to set up what has been mandated done — heterogenous and extraneous interests, dust, mud and all that, considered.

The prospects are difficult, yes. But a possibility, one would like to point out a valid observation, had begun surfacing when the nation's ham-leaders, in an NTC initiated meeting last February 29 this year, civilly met

at the Quezon City Sports Complex in Metro Manila.

The meeting was noteworthy not only because of its good portents, not only because "every ham" was there momentarily dismounting his respective high horse, but also because government officials tasked with attending to matters concerning the welfare of electronics communications were present. Commissioner Ceferino S. Carreon and his Deputy, Antonio C. Barreiro of the NTC, indeed, provided an important ingredient, displaying whatever interest they have in the development of Hamland Philippines.

All these would take place, by virtue of the recently issued NTC Memorandum-Circular No. 1-01-84 (See TAR Special Supplement, January 1984), which had the meeting meant for an election of officers of the Interim Amateur Radio Advisory Council (IARAC). Representatives of nine NTC-accredited ham district clubs — with the respective presidents of the nationally expansive Philippine Amateur Radio Association (PARA) and the Philippine Chamber of Amateur Radio Societies (PCARS) — would pick among themselves a "national leader."

With NTC's acknowledgment, the IARAC formation was somehow done that day when eleven ham-leaders (Atty. Norberto Gonzales of the Before Breakfast Club (BBC) representing District I; Vicente Suarez of CLARC (District II); Maximino Vera Tan of NARA (District III); Inocencio Roa of BARRL (District IV); Dominador Bornasal of EVARCI (District V); Cesar Ong of PARC (District VI); Donato Poblador of NARS (District VII); Jose Valderrosa of WEST-MARC (District VIII); Pete Torres of MINDARA (District IX); Dr. Antonio Lazatin of Metro-MARC (repre-



PCARS' founder and incumbent president Jose J. Tupaz, Jr:
The smiles are enigmatic.

sending PARA on behalf of Mr. Poblador); and PCARS president Jose J. Tupaz, Jr.) were marked out for the interim council.

This council of ham-leaders, according to the Memo-Circular, "shall prescribe the rules and regulations in the conduct of its affairs subject to the approval of the NTC."

And for those present during the occasion (the council-members and a handful of observers from various radio clubs who flitted to the Sports

Complex), the conduct of the meeting's affair that Wednesday afternoon would become a manifestation of their passion for the hobby which, by some analysis, appeared to be livelier than what their intensity warranted.

With diverse forces of character and a pronounced rift among their ranks permeating the hall they were in, they would, nevertheless, gallantly confront the task laid before them and tackle it like some highly charged rugby team in a momentous game in the Astrobowl. Theirs was an intensity uncharacteristic of any group of hobbyists in the archipelago. This was most evident when the NTC Commissioner and his Deputy would yet make their presence felt.

PARA's helmsman Donnie Poblador and PCARS' grand oldman, Jose "Golden Heart" Tupaz, Jr. would, like some reliable bellwether, not go



NTC Commissioner Carreon: A tight-rope balancing act?

farther than earshot from their respective "flocks." Observers, led by Jose Mari Gonzales (movie-ham personality) who is currently a Director of IARU Region 3, circulated among the

council members, discussing lapses and sometimes candidly pointing out blots in a given task on the part of the NTC. These would cause some irony and sarcasm and tinge the affair's cadence and complexion. Meanwhile, the two young engineers — Jaime dela Cruz and Joselito Leynes — sent ahead by the NTC prior to the arrival of the Commissioner and his party, couldn't help being overwhelmed by barrages of questions and inquiries that zero in on the propriety of this meeting with only these two young NTC men to moderate and steer less the more responsible officials of the telecommunications agency who, first of all, initiated the activity No. . . said the knowledgeable hams around. . . for they insisted that the meeting proper be conducted with the Commissioner and his Deputy around, as these hams had been made to understand.

The Interim Amateur Radio Advisory Council

THE QUEST FOR UNITY GOES ON WHILE A RACE OF HIGH HORSES RAGES



Donnie Poblador, PARA president, (center): Facing up to the challenges of preserving an institution.

(Because according to a telegram sent to the ham-leaders involved in the affair, the meeting was to start at 2 p.m., with the Commissioner attending it!)

Engineer Heracleo San Juan (chief of the NTC Division that takes care of ham affairs) finally arrived, followed shortly by the Commissioner and his Deputy. They checked in past 3 o'clock, within moments of each other.

It took their presence to make everyone settled and the erstwhile assaulting din kept at more comfortable decibels. Everyone would now anticipate the election of the IARAC officers. Within them, adrenalins must
(Page 26 pls.)

HOW'S IT AGAIN, IARAC?

EYEBALL

Gerry Y. Bongalon, DW4AT



It takes less time to do a thing right than to explain why you did it wrong.

- Henry Wadsworth Longfellow

* * *

First some bad news. TAR correspondent Raffy Soliongco wrote in from Metro Manila informing us of the untimely demise of Winnie Lim sister of Booby, DU1LB. Winnie succumb to cerebral hemorrhage last March 22. She was interred at the Loyola Memorial Park in Marikina. Winnie is best remembered as a darling of all hams. TAR and its whole staff extend their deepest sympathy to Winnie's bereaved family.

* * *

Raffy also informs us of a vehicular accident which befell Cynthia Diaz. Cynthia is a daughter of General Diaz. Shae, as she is fondly called by friends, was seriously injured when the vehicle they were riding in fell in a ravine at Camp 6, Kennon Road while on the way to attend the graduation rites at the Philippine Military Academy in Baguio. Shae's brother unfortunately died in that accident. Other companions and relatives who were with them also suffered injuries. Shae's an active member of the Ham Radio Philippines.

* * *

Now, for some good news. NTC Commissioner Ceferino S. Carreon has approved a proposal to form a committee which will prepare a draft of regulations to govern radio dealers and manufacturers. These regulations will attempt to rationalize the operation of radio dealers and manufacturers in the country particularly in the sale, purchase and construction of transmitters and transceivers and their relation to the proper usage of the radio spectrum. In a memorandum for the NTC Commissioner dated March 16, 1984, NTC Radio Regulations and Licensing Department Acting Chief, Engr. Heracleo L. San Juan

also informed the Commissioner that the committee's membership have already been marked out. TAR is publishing the entire memo somewhere in this issue.

* * *

In the U.S.A. the Federal Communications Commission (FCC) has adopted a ten-year term for licenses issued to amateur radio operators and stations. Upon expiration of the license term, a two-year grace period can also be availed of by American hams in renewing their licenses. The changes make an amateur operator's and station's license viable for 12 years. However, operation is prohibited after the ten-year term until such time that licenses are renewed. One thing with these Americans is that they do not only think of convenience for the government, they also think of convenience for the publics they serve.

* * *

Last April 14 some 400 amateur radio enthusiasts in District 4 trekked to the NTC testing center (Bicol University Little Theatre, Daraga, Albay) for a crack at a Class C license while 25 others tried their skills for Class B. Obviously, there is a growth in the number of hopefuls compared with the previous years. I remember when we tried our luck for Class C we were but a handful. This development is, if this quarter may be allowed to assess, heartwarming. Many more are coming into the fold, so to speak. Indeed, there is nothing to fear in the NTC exams. What one needs is sufficient preparation. Anyhow, whatever one undertakes can be accomplished successfully if one possesses the determination and preparation. With a little luck, results may even be better. To all those who had the guts to face the challenge of operating legally, our congratulations. Similarly, the NTC personnel fielded to attend to this important matter deserve a pat

on the back for a job well done and for possessing a thorough understanding of the psychology of persons under stress such as those faced with the task of hurdling an examination. Well, if some of those who took the exams may not make it, there is always a second chance. As our Associate Editor Alfie Camua-Sy says, "next time around there will be no next time." Uh-uh, Alfie feels he will not make it. CW had him black and blue. At any rate, should anyone fail, don't find it a cause to go bootlegging. Take Alfie's line for a measure.

* * *

Congratulations is also in order for NTC Commissioner Ceferino S. Carreon for ably representing the country in the International Telecommunications Union. We understand that the good Commissioner was elected vice-president of the ITU's Administrative Council this year. Reports have it that his present position automatically qualifies him for the Council's presidency next year. It would be nice to have him there, would it not be? If our readers recall, Commissioner Carreon is also the president of the Asia-Pacific Telecommunity (APT), an organization of telecommunications administrations in the Asia-Pacific region.

* * *

Another development, in the local front this time, is the forthcoming admittance of the Special Mayon Amateur Radio Team of Legazpi to the fold of the Bicol Amateur Radio Relay League, an umbrella organization for all ham societies in District 4. SMART have, we understand, almost completed the requirements for membership provided for in the League's constitution. A point this quarter wishes to raise regarding this issue is that misunderstanding or animosities can be cast aside if only to forward the cause of amateurism. How's it again, IARAC?♦

NOTES ON DETERMINING THE DIRECTION OF ARRIVAL OF RADIO WAVES

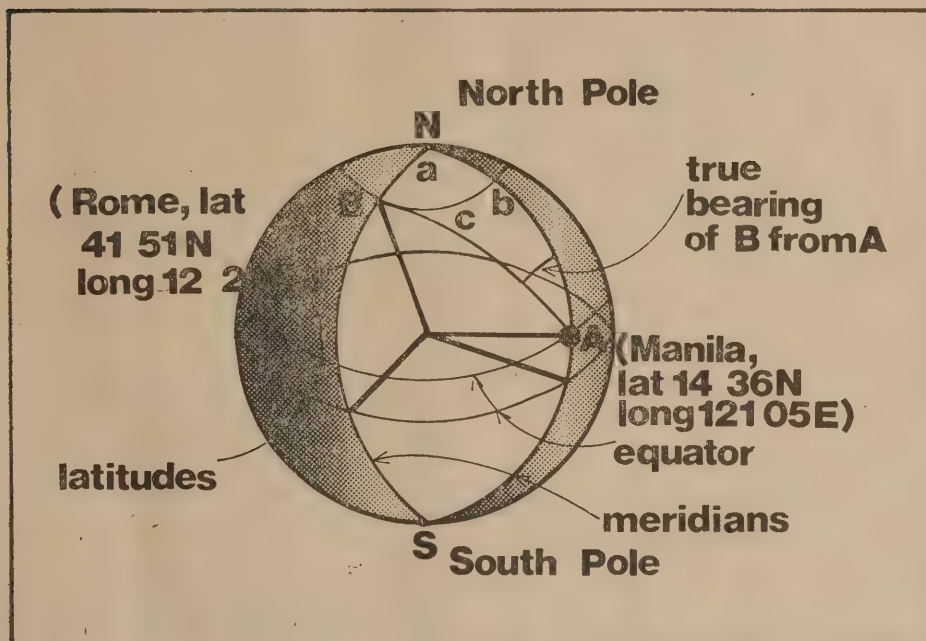
To make these calculations, the latitude and longitude of both the transmitting and receiving stations must be known, and the direction of any receiving station from a transmitting station is determined by the angle at the transmitting station between its meridian and the great circle passing through both stations. This angle is the true bearing or the azimuth of the point, measured from 0 degrees

the southern hemisphere, the third situation is where both stations are in the southern hemisphere. The following computations show the first situation, when both stations are in the northern (or southern) hemisphere. When one station is in each hemisphere, north latitude is taken as positive and south latitude is taken as negative.

Ricardo G. Hechanova, DU6RH*

Although it is known that high-frequency radio signals do not always follow a great-circle path, the bearing and distance calculations of a great-circle path usually give good indication of the path followed by radio waves, especially in cases where the ends of the transmission line end in the same daylight zone.

The bearing and distance calculations of a great-circle path involve the applications of spherical trigonometry by solving a certain triangle, called the terrestrial triangle with the North Pole as one of its vertices and the points on earth the other two. The other two sides of the triangle are the meridian segments, each passing through each of the two points.



*DU6RH, "Caring," belongs to a rare breed of radio amateurs in the country today. He's been a ham for the last 24 years maintaining his permanent QTH and residence at 317 San Agustin Street, Iloilo City 5901, Philippines.

As a ham, he has the distinction of having been awarded two DXCCs, one for phone and the other for CW. Aside from these, he has some twenty other awards collected over the past 24 years of active hamming. He presently sits as a Director in the Board of the Iloilo Amateur Radio Organization (IARO).

DU6RH is a civil/structural engineer by profession. He is at the same time an Aquaculture Engineer/Consultant of the Food and Agriculture Organization (FAO) based in Rome. He's been serving this world body since 1977.

While this article is the first to appear under DU6RH's by-line, future issues of TAR will be coming up with more items from him.

at the north and clockwise to the right through 360 degrees, and is found by subtracting the angle from 360 degrees.

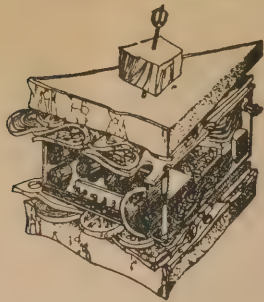
The following calculation for bearing and distance between two points on the surface of the earth makes use of the formulas by Napier's analogies, and shows the analytical computation of the azimuth of the shorter great circle route between Manila and Rome.

Three possibilities exist when making great circle computations. The first situation is when the two stations are both in the northern hemisphere; the second where one station is in the northern hemisphere and the other in

the southern hemisphere, the third situation is where both stations are in the southern hemisphere. The following computations show the first situation, when both stations are in the northern (or southern) hemisphere. When one station is in each hemisphere, north latitude is taken as positive and south latitude is taken as negative.

Amateur radio DXers who have directional antennas use an azimuthal map for convenience and the principle upon which this map is constructed is based on the use of Napier's analogies and includes all the essentials of the gnomonic system of projection. In this kind of map, the earth is shown with the plane of projection tangent at point of the transmitting station and points on earth's surface are at meridians appearing as radial straight lines. The distance of a receiving station is measured along a straight line connecting the two points, the transmitting station being the center of the concentric circles that give the distance.

(Page 28 pls.)



OF THINGS FULL AND CHARGED

HAMSENSE

Alfie Camua-Sy

For the DX and CQ creatures, whatever vibrates in the many streams and ranges of the ether mystery is somehow music to their auditory perception. The portrait of a ham seated by his machine, contemplating the "audio-esoterica," becomes reality transposed into a thing close to some tribal truth with some twentieth-century charm in it. The switched-on electronic people couldn't have been happier exploring this delight. Inside one's shack calls for the projection of the authentic self, seeking out the essence of a hamming artist totally instructed by the Marconic cosmos. Here, frequencies and wavelengths becomes God's gift, like fire, to mankind, coursed toward some ties with the stream of cosmic consciousness.

One attempts to divine the meaning of the etherworld. Could there be "other voices" out to transmit great tidings for the hamkind? The rig can deliver circuits of strange experience; this feeling is coming up to a general impression. To absorb some presence — divine, ancient or otherwise. . . To QSO or not to QSO with beings other than the terrestrial bound (the almost angelic ones!) is the question.

QSO with "other voices." It's not very unthinkable, one ponders so, in this age of computers and quantum movements.

It may be contact with the dead via a ham machine! Dr. George W. Meek claimed he did it so with a not-so-strange rig, *Spiricom Mark IV*, he developed with the help of an associate with clairaudient capabilities. (See TAR January, 1984 issue.)

Sometime ago, an astronaut swore he monitored with his electronic machine "strange voices" he theorized came from extraterrestrial creatures, existing somewhere in the outerspace. And maybe somewhere somehow he is right!

Maybe, when one hears some intruder-noise in the frequency he's currently tuned in, as he goes with his DX, maybe this noise which one will attribute at once to some kind of jamming is not jamming after all, but probably the *other* code/cw practiced by some strange creatures attempting contact from out there, touching some mystery point of the etherworld.

Who knows. . .? Perhaps the sound of the "Chariots of the Gods aglow with the splendor of a Nova Estela at Equinox Hour" is travelling the waves, traversing our frequencies. Who knows?

In this, to Isaac Asimov's "The science-oriented society which I believe to be the only possible route to world government. . ." we may try to conjure up some mode of total ham perception to, perhaps, establish "possible route" to a cosmic-universe government.

Within the realm of a technological world, which is in constant flux, exists a ham culture that tinkers and vibrates with some cosmological construct, unperceived and undecoded yet.

The *Second Coming* in Yeats' vision says "things fall apart. . ." But one says in the heart of the ham culture evolves a picture of "things full and charged. . ." The hamming art fully charged with a sense of human reality of a "cosmic center" within and without the universal "openness." Welcome to the center within which the ham exists: Einstein unbounded universe! Verily, the world of hamming is not enclosed. . . it is open. . . unlimited. . .

It is a world of function: To break promontories of unknown and to reveal *new voices*, just as the Theory of Relativity "broke the bonds of the concepts of absolute time and space and simultaneity."♦

... With exceptional foresight into the future progress of amateur radio, they conceived the idea of offering a trophy for the first contact with the planet Mars through amateur radio. . .! Accordingly, they shopped for, and chose a beautiful Igorot carving and had a plaque made of Baguio silver for the inscription. This was sent to headquarters ARRL in early 1929 whose staff at first thought they had gone crazy, but kept the trophy. In QST for July, 1929, Mr. Maxim, in his article, "DX Dreaming," concludes: "... is ours the sole intelligence in all the cosmos? Will it be an amateur who first answers this great question . . .?"

— Dr. Edmundo A. Reyes, DU1OR

Send copy to Howard McElroy K24P

I would like to see that day when the long standing world CW-copying record is broken. And if it is not too much of a presumption, I'd like to break it myself. Right now, I'm pushing for 80 words per minute on my daily exercises.

— Phil B. Tuvera, N2ESJ

These are not empty ham-words for these come from a two-time American CW-copying champion.

Filipino (Phil) B. Tuvera, for starters, sports the call N2ESJ. He was erstwhile registered as KA2CLF with the American Federal Communications Commission (FCC). He's been actively hamming it up under American skies for over five years now. But before he became a ham, though, he was already a dyed-in-the-wool electronics communicator.

Phil started as a telegraph operator in the defunct Manila Railways (MRR). He stayed there for some years until overwhelmed by the quest for adventure. He soon found himself enlisted with the U.S. Navy — ship steward. "I wanted so badly to be back in the radioroom then. But in the U.S. Navy you have to be a citizen to qualify for the task. It takes citizenship to have access to classified information to which a radio operator is privy to. It was rather hard to have it my way. So, the citizenship," Phil allowed.

When he, however, obtained his citizenship the railroads once more beckoned. He had himself discharged from the Navy and on to Panrails, a consolidation of civil railway networks. Back to telegraphy, then.

Rails to Rigs

At Panrails, they have this civil defense club. "Radio operators are privileged to be automatic members of the club. It was here that I was seriously introduced to amateur radio. After a chain of briefings, it was soon time for my license from FCC."

Phil who hails from Villasis in Pangasinan reveals that it is not hard to get acclimatized to the American amateur radio ambience "if properly equipped." In fact, the right breaks abound.

It did not take long for Phil's capacities to be recognized. First he got into the popular MARS, then, somehow became a "star" in a society of high speed field operators. When TAR had an interview with him last February 4 this year during a short visit in Metro Manila, Phil modestly said that he now has this enviable res-



Tuvera

CW - COPYING CHAMP WANTS McELROY'S MARK RIPPED

Felipe Jose B. Peralta

possibility of "administering high speed contests." This he earned by becoming a champion in the game. "The last record I submitted was 68 words per minute. It was done under very difficult circumstances. At any rate, no one has yet come up with a better score."

Although N2ESJ now concentrates on CW he was once very active on phone. The loss of his phone set diminished his activities. But somehow, N2ESJ has his 2-meter and that keeps him in touch with the rest under this band. As a net result, he professes a lopsided regard for 80 (during winter) and for 20, 40 "at, ahhh... 'yung dalawang bands — 20, 15" (during summer).

Beat McElroy, Ply the Pacific

"I've been trying hard to penetrate the Philippines from my QTH, however, much depends on the 'prime condition'... we have this eleven year cycle. I succeeded, though, but once. I had contact with DU1NEL. The difficulty here is, when you put on your radio and your signal is loud and clear you'll immediately have a pile up from European stations. You can't tell them to leave you alone for an opportunity to QSO with a countryman. Especially these days when the eleven

year cycle is on a down slope you can hardly pass the Pacific." Phil hopes to find a solution to the difficulty, though.

Phil holds a General license. He is a firm believer in CW and highly appreciates the Q code. "There is an irrepressible tendency to reach out beyond domestic shorelines. A ham would always want to have friends from other parts of the world. With your phone and a very limited knowledge of other languages, communication barriers will endlessly plague contact. CW will offer no such limitations meanwhile the Q Code can bring each party half way around what they want to achieve." N2ESJ quips.

"At the same time," he adds "computers are becoming very exciting. I am into it now. And it will be very well not to be left behind. There are new wonders in this new technological package."

With fair winds, so to speak, N2ESJ may sail past Ted McElroy's record of 75.2 words per minute which he set in 1939 at Ashville, Carolina. If Phil can really peak at 80 wpm or not so far from its neighborhood and do it consistently until the Daytona Hamvention comes, we have a clear winner in him. ♦

Agnes Alejo

She could not settle pat for one straight quarter of an hour. Discussions were always punctuated with calls from Mr. This and Mr. That. Mr. This and Mr. That need information, assistance, direction, a pencil. Mr. This and Mr. That beside, she would tend to the registration table, be back again, away, back. She could be everywhere at one time. We were handling a livewire.

Our livewire was Ana Rebecca Remedios M. Lim, DU1LB. The occasion was a posthaste interview. Posthaste it may have been, but that was one rare moment to catch someone like DU1LB.

DU1LB whose equally popular handle, Booby, is one of the more conspicuous YLs in the country today. She's very much into amateurism and most often the only rose among . . . the male dominated local hamdom. Recently, Booby was elected as director in the PARA Board of Directors. She represents the Class C category and perhaps in the PARA history the only YL yet to occupy the post. Aside from PARA, Booby is also deeply concerned with the affairs of the 508 Group. PARA, 508 and connection with a dealership of amateur radio rigs and other electronics equipment almost make Booby's daily grind.

Charming and blithe, Booby doesn't feel intimidated gravitating in a company of OMs. She's self-assured. In fact, she can dish out discussions about amateur radio with the relish of an OM, an enthusiasm which somehow erases doubts that hamming is only for the "stronger sex." Booby's response to questions about her hamming is not much farther from that of a young kid who just had his first swallow of salt water during a summer outing — full of verve, very interesting.

Every inch a Filipina but of the Metropolitan genre, Booby's perception of being a ham is practical: "I believe that girls are girls whether you

place them into the amateur radio world or anywhere else. Right, they have their limitations. On the other hand, so much expectation is accorded them. In my case, I have learned to accept the ways of those involved in amateur radio. I can already easily get by with the persons who have deeply taken to the hobby. I have to admit that I have sort of been influenced by these persons I relate with. It does not, however, diminish a bit my being a Filipina. The Filipina is still a Filipina *maski magradayo siya, maski mag-stay siya ng late at night* and all that. She does not lose that feminine touch in her. When you go up the tower to fix your antenna, which I do sometimes or when you solder something which in the process may chip your manicure, these can not make one a bit less a Filipina."

Booby happens to be one of the most active net controller of DU1PAR. She takes care of the evening slate.

As net controller she admits that skill is a must. Like, a controller must be able to hear right away, distinguish immediately the call sign of anyone checking in. The effect of this skill alone is far reaching, she realizes. "That's one way of taking out the 'ham from the piglet.' I mean, somebody who is just starting to get into it must be on the frequency where he can monitor the best of the crop."

A net controller somewhat has a mission. "I read articles in TAR about bootleggers. I believe there are bootleggers because they were not properly oriented. They fell into bad company." A net controller therefore has the moral responsibility of putting out the best in amateurism. "We should not leave anything to chance. Our presentation must be a magazine of sort, instructional, societal and never of the 88 stuff which is for little kids. It is an obligation to make newcomers realize that during the net, or in operating a radio, in this case, no one is



Booby

alone. A whole universe is listening to you."

Operating a net is no easy task Booby declares. "A controller should not wait for check-ins. He should be able to invite hams to check in. They might be listening to the net the whole day, yet that does not make the net any better. The controller must be able to let everyone in. *Parang*, we must be talking as if by a round table."

Net controlling is also touchy. Often times breakers would usually ask for some information. And it is not very often that those in control know the answers every time. Booby has learned to face up to this particular quirk of the task. "One time I was bombarded with questions about the NTC. I cannot talk on behalf of this agency. I am not in any position to do so. Well, very kindly, I told those with NTC related questions to go direct to Panay Avenue."

Certainly, net controlling with DU1PAR has earned Booby a great degree of respect from hams all over the land. With the wisdom she has acquired along the way, Booby has surely widened her perspective of ham radio. And for the Filipina who goes on the air she has this to say: "My co-YLs and also XYLs in the land must accept that amateur radio can only be learned the hard way. No cut and dried rules are failsafe. We can start by monitoring first. There is no substitute to dedicated listening. This will acclimatize the beginner. Things can be made easier with some help from OMs. Forget the 88 stuff. There's nothing to it but tons of hot air. Yes, hamming is also for the fairer sex."♦

THIS YL ADDS MORE MEANING TO LIFE BY HAMMING

JRC HF HANDY TRANSCEIVER

JST-10

7MHz & 21MHz

NEW

The JST-10, while featuring a 10W output power, is a HF-band transceiver capable of long-distance communication and boasting of full portability even with the batteries and antenna attached. Even if your home station is not adequately situated for DX, you can easily carry the transceiver up to the top of a hill or the rooftop of a building, or to a seashore to enjoy DX operation as much as that from a high-power station or a beam-antenna station.

If you wish to enjoy an active life, the JST-10 is made just for you to refine your HF QSO technique and to take delight in DX with your ham friends.

Compact, Lightweight and Kindly Design

The JST-10 is not only compact and lightweight, but also tough enough against vibrations and water drips. Further, a convenient handle and a carrying belt make it easy to carry around.

The microphone is attached firmly to the main unit, and the power switch is protected from being mistakenly turned on or off. Other thoughtful design features are an LCD for easy reading in a bright place and illumination for the LCD for night operation. Shielding is also thorough with the case inside fully coated with electrically-conductive material.

7MHz/21MHz, SSB/CW

The JST-10 covers the 7MHz and 21MHz bands, giving you a practical amateur radio service. It can also get SSB and CW on air, ensuring a wide-range service from local to overseas QSO.

Highly Efficient Whip Antennas

Two separate whip antennas are provided for both 7MHz and 21MHz bands. Response variations within each band are easily adjusted by the antenna's extensible mechanism. In order to obtain a constantly stable output power, a mini-size radial earth is provided to minimize the body effect.

Highly Stable VFO Using VXO

The local oscillator is composed of VXOs (variable crystal oscillators) uniquely developed to have unconceivably wide-range special characteristics. The 100kHz bandwidth in the 7MHz band is fully covered with one VXO and 450kHz in the 21MHz band with three VXOs. The JST-10 which is provided with the high frequency stability of crystals and with the flexibility of a VFO is a masterpiece of handy transceivers.

Long Duty Period by High-Capacity Battery Pack

A special Ni-Cd battery pack is used to ensure long-time operation. The battery pack can be recharged from an AC power line or from a 12V battery. The JST-10 can also be operated from your car battery, or from common alkaline dry cells.



JRC
Since 1915

Japan Radio Co., Ltd.

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Manila, Seattle

**The
new
outriders,**

Rico Flores, DU7VT
(l) and Angie
Verdan, DU7ANZ (r):
treating
the vexations in the
game with the placidity
of the wise.



Frank Sallena

A Cebuano heritage, as the cross of Magellan ("relic of the globe's first circumnavigation") or the blanching golden beaches that taunt the tenderfoot for a feel of nature's endless mysteries, amateur radio has been, through the years, a constant source of new circuits of experiences that somehow completes the total make-up of the Queen City that Cebu is.

Amateur radio, indeed, has been very much a part of Cebu for over many decades. In fact, it has been charming generations of kindred spirits, who, despite pressures of daily practical affairs, found, still find precious hours to devote to this magical kind of a hobby.

Amateur radio is here in Cebu! A presence not, of course, inadequately understood. One need not leave or set sail to this Queen City to perceive its vibrancy which is unquestionably capable of producing correspondence between distant points. . . of equally strange traits.

What the hobby is today is an evolution of no mean significance. . . both to its pioneers and paranympths with their parouses, who are ever charged up by an undying quest for a space and ubiquity that can solidly hold them (and the hobby) in the city's well-trodden ways.

To the veritable children of technological culture, amateur radio has totally arrived in Cebu City.

As Old as PARA

Today, amateur radio here means the *Cebu Amateur Radio League*

(CARL) — an organization of ether devotees, of which an initiated would be quick to credit as "almost as old as PARA."

Devotion to and love for the ether-world started in Cebu long before world war II pounded the country into smithereens (way back many decades when even the present CARL president had yet to distinguish ham radio from Leon O. Ty.) Those were the '20s and Tomas Rivera (K7TR) — a ham with no mean reputation in Cebu — already had that "place in the sun" among the hamming circles of the day. Rivera would found the 1922 group. He, with some others, had the inspiration to organize the country's first ham club: the "Amateur Radio Club of the Philippines" or ARCP.

Rivera's romance with the wireless world would, in no time, electrify Cebu. A legion would now recognize some promise of amusement and values that more than meet their communication eyes. . . A message on the inevitability and coming age of wireless communication have been transmitted loud and clear, so to speak.

Cebuano enthusiasts began, in a curious way, to relate themselves with the growing wonder of this electronic presence.

In 1948, an amateur radio station (DU7AHS) was set up by Engr. Gaudioso Ocol (DU6GLO) and his fellow hams at the Abellana High School for training purposes. The year after that, installation of another radio station at the Cebu Institute of Technology for CW and AM (DU7CIT) was done, this time, by Eulogio Bonsucan of the U.S. Army Signal Corps. In 1950

Voltaire Sotto (DU7SV) came up with his own station. . . and with it Sotto would distinguish himself in the field of DXing.

The rest is Cebu's hamming history.

The Birth of CARL

Part of this history is the emergence of a new breed of hams, influenced by their predecessors' efficiency in handling their machines and in blending usage with obtaining ambience. The Central Visayas Amateur Radio Club (CEVARC) would be organized in April 1974 by Olivo "Butch" Cinco, with full endorsement from the amateur radio operators in the area. This done, Butch and company would thrust themselves into ham activities which included "transmitter hunts, propagation studies, DXpeditions to such remote points as the Leyte Landing (Red Beach). . . Ormoc, Toledo (ACMD). . . the Unison Island." Their other activities would range from serving the communications needs of the International Boy Scouts Jamboree at Makiling to hosting of island-hopping PARA Board meetings, and so on. . .

Then on to a period of reprogramming needs. In 1978 CEVARC would be reorganized assuming Cebu Amateur Radio League (CARL) as its new identity. Ham leadership would change hands through the years. Now, other radio groups would see light, even if by turns. . . ALERT, RESCUE, CANNINE — eventually all these would become affiliate member-clubs of CARL. CARL has now evolved as the umbrella ham organization in this district.

The Cebu Amateur Radio League

A TRACE OF HISTORY A FEEL OF THE FUTURE

The New Outriders

Effectual can best describe the League's present set-up, under the leadership of its youthful president, Enrico "Rico" Flores (DU7VT), with remarkable support from his vice-president Angelo "Angie" Verdan (DU7ANZ). DU7VT and DU7ANZ are like two well oiled gears. Theirs is a winning combination, so to speak. And like inheritors of a prestigious heirloom, they would maintain as much as possible the essence of movement and concept started by their forebears, without in any way lessening the premium on contemporariness. The likes of ham leaders as Rico and Angie are reasons enough for this League to go on with their projects and programs, which involve principally regular communications assistance to the Cebu City local government (during emergencies/disaster/calamities/OPs/special events). The League also sees to it that they provide emergency mobile medical-clinic come the Sto. Niño festivities, a red letter day in Cebu's calendar of significant events.

Their presence at the helm of CARL makes the organization flexible, judging from the way Rico and Angie define their positions. With them, CARL may undergo some appraisal of its set-up; who knows, the two may be doing some soul searching which consequently may flush out new "marvels" in hamming techniques and activities. . . For there are things they can do that their predecessors have not done. . . visions that others may not have had the courage to open up to.

Meeting them — Rico and Angie — in a significant eyeball like the recent PARA Board elections (at the Q.C. Sports Center), where they elected not to vote (for reasons of principle), well, it could mean an encounter with an existence proper to our time

and illuminative of our peculiar interests in some electronic experience. They were there, immediately expressing themselves, recounting some possibilities for CARL and its relation to the PARA and the NTC and the bootleggers and the DU Net and the seminars/trainings they would have to get involved in. They discussed attitudes to their work in the league. . . partly talking about themselves. . .



CARL President Rico Flores, DU7VT:
"Self assertion is the key."

Youth and Leadership

About Rico and Angie.

Rico, the CARL president, a veterinarian by profession, has been a ham for just about four years (started in 1980); while his CARL co-pilot, Angie, although new in the hobby, is a holder of a 1st Class radio-telephone operator's license, a skill complementary to his being an aviator, well trained in air traffic control and communications.

Although their terms as helmsmen of CARL run only the entire length of 1984, the CARL president and veep have looked deep into the future of the league and they, for one, said that by the middle of this year they would "let it all go" hoping to bring out some new "marvels" for CARL and the immediate community they are existing with.

Meantime, the inevitable vexations in the game they treat with the placidity of the wise.

Like, containing, putting up with the bootleggers. "We invite, even, open our repeater frequencies to them. . . in mind to attract them to fully embrace the hobby legally. . . we do not report them to the authorities, instead we encourage them, teach them to become real hams." (Rico) *We appeal to their inner sense of goodness.* (Angie)

The NTC. Rico and Angie are willing to assert themselves and fight for what they think is right and best even if they have to pound on the Commissioner's desk to deliver their point. But then. . . *they learned to be pragmatic.* It is better to fall in with those arrangements than to be bellicose. "Here in Cebu, we comply!"

Simply get on, just that, with the local regular activities. "A 2-meter net is being conducted regularly every evening at 8 p.m. at 144.600 MHz, with Cinco at net controls." "CARL review classes on hamming are held every Saturday evening at the Southwestern University. . ."

Simply concentrate on some future CARL happenings: A Hamvention is in the mind of these two ham leaders. "There's a possibility this big thing can happen here!" (Rico) The first time we had a hamvention in Cebu, we garnered some rewards. . . financially and some other things! (Angie)

The long and short of what Rico and Angie have to say, in terms of CARL's presence and their roles, should be: they are promising leaders! They will hurl themselves smack into it, proceed even mechanically. . . the first time and then the next. . . plow through it until things fall into place.

And it seems there'll be no particular point at which they'll stop being promising. For CARL, for themselves and the rest of the hamming presence. ♦

WARC '84 AND THE COMING OF SSB AS A BROADCASTING MEDIUM



Engr. Cielito Vita

The high frequency (3 to 30 MHz) or shortwave spectrum has become extremely congested. For the last several years, especially during the last decade, numerous types of services have been jockeying for better spots which most often results to interferences.

Major portions of this spectrum are used for specialized communications. Twelve bands in the same spectrum are, however, allocated to broadcast. Although the said bands are specifically "fixed" for broadcasting, still droning, squeaking and other "strange noise" signals are easily perceptible.

Broadcasting on shortwave has, indeed, suffered much under this condition. So that time has come when only those stations with strong signals can well survive in this kind of bottleneck.

In order to be heard, stations have to radiate higher power, which, consequently, cause interference to stations on adjacent channels or frequencies. Stations also broadcast not only on one or two frequencies for a particular transmission but on several parallel frequencies. This practice further compounds the problem.

But the gravest problem that has been bugging the entire system for a

long time now is the practice of deliberate interference or jamming. Political systems which frown upon their constituents receiving broadcasts deemed adverse to their line of thinking or oppressive governments which do not want their people to know of their wrongdoings resort to jamming stations which broadcast news or stories about them.

What is then the future of shortwave broadcasting?

Jam the ITU

The International Telecommunication Union (ITU) is the specialized agency of the United Nations which looks after all electronic communications the world over. Seated in Geneva, Switzerland its work is not as well

JAMMING UPDATE

Of the 18 international stations which broadcast in Russian to the USSR, seven were jammed in 1983, including stations of the U.S., Great Britain and the Federal Republic of Germany. The seven account for 80 percent of Russian programming to the USSR. Additionally, VOA and Radio Liberty programs in Estonian, Latvian and Lithuanian, Armenian, Georgian, Azerbaijani, Ukrainian and Uzbek are jammed, as are Radio Israel's Yiddish and Hebrew broadcasts to the USSR. Other targets: VOA Dari and the Pashto programs of VOA, BBC and Deutsche Welle. Dari and Pashto are spoken in Afghanistan.

— Sherwood H. Demitz
VOICE magazine, March-April issue

known as those of other international organizations, its years of existence, (ITU was set up in 1865, during the heyday of the electric telegraph) notwithstanding.

Currently, ITU has 159 member-countries that get together to work on developments in all forms of electronic communications. The Union's work includes the allotting of radio frequencies among the different services such as maritime, aeronautical and space communications, and in broadcasting on long wave, medium wave, shortwave and VHF. ITU is involved in all agreements on frequency allocation for future plans.

In 1951 and 1959, ITU member-countries, in a conference, approved procedures for frequency allocation plans specifically for the high frequency spectrum. The 1959 plan was in use for 25 years. This plan provided the following procedure: If a country decides to use a particular frequency, it notifies the ITU's International Frequency Registration Board and the Board then checks if use of such frequency can cause interference to another country. If interference will be inevitable, the country concerned is given the responsibility to do something about it.

By the 1970's, it became obvious that this procedure was not working very well. It was some kind of "first come, first served system."

WARC at Work

Every few years, ITU member-countries get together for a technical radio gathering. This gathering is called the World Administrative Radio Conference (WARC).

During the 1979 WARC conference, the situation in the shortwave bands was noted to be unsatisfactory. It was rationalized, however, that all countries are guaranteed free and equal rights to the use of these bands. But WARC propounded, which was later agreed upon, that "a little more room should be made on the existing shortwave bands and one new band be created." The conference also proposed to hold a two-stage conference which would create a plan for the shortwave bands.

This year, 1984, WARC again went to the drawing tables. It went (Page 32 pls.)

Raffy S. Soliongco

Whose task is it to clear the amateur bands of harmful interference?

Government radio administrations the world over are noted to be sleazy in dispensing with their appropriate powers. On the other hand, how equipped are amateurs to exercise police roles over bands which, in the first place, have been allocated on exclusive basis?

At the onset, which interferences must be watched out? Should these be those which come from the bootleggers, the hooligans, the pirates whose degree of illegitimacy is somehow influenced by the environment in which they operate.

Can anything be done at all?

Many things, indeed!

Sometime in 1967 Australian ham David Wardlaw (VK3ADW) became the first principal coordinator of a "counteraction move" set up by some very concerned hams. Among themselves they resolved to neutralize commercial and government stations that intrude, purposely or accidentally, into the select amateur bands.

The Intruder Watch

Wardlaw and company dubbed their agency as Intruder Watch. Essentially, Intruder Watch was designed to monitor the goings-on in their bands. It enlisted every "active and adequately equipped" radio amateurs and SWLs to perform the task.

In 1969, Intruder Watch was institutionalized. Wardlaw turned over the task to Alf Chandler (VK3LC) who dished out a very creditable performance until he had to relinquish the position to another worthy successor.

But Chandler would not rest. From Intruder Watch he became coordinator for the International Amateur Radio Union (IARU), Region 3 (where the Philippines is a member country). As IARU coordinator Chandler is tasked with gathering Intruder Watch reports covering Australia, New Zealand, South-east Asia, Japan and the entire Pacific Area for submission to Intruder Watch Headquarters in England. This he does on monthly basis.



INTRUDER WATCH:

SHOULD HAMS POLICE THEIR BANDS?

Intruder Watch may not be a blockbuster like W5LFL's DX in space. But its continued existence have not been in any way unmeritorious.

In fact, in April 1982 during the IARU 3 Conference in Manila the establishment of Intruder Watch have been popularly endorsed in every country in the region. Besides, existing Intruder Watch outfits have been urged to work for a close liaison with government radio administrations.

The conference's Agenda Documents provided that "... it was recommended that each IARU 3 society continue to work for the establishment of an Intruder Watch and that each society establish the necessary liaison with its administration so that complaints of harmful interference to the amateur radio service can be processed in a fashion which will ensure their recognition by the International Telecommunications Union (ITU)."

Novelty and Vigilance

While intruder watching is in itself something novel, it is rather ironical that amateurs are forced to adopt a policing role for their bands which have been allocated with exclusivity. The pervading sentiment is that the job should really be that of the government radio administration following the logic that amateurs deserved the "service paid for apart from the cost of the privilege." Sadly, not all government radio administrations look for intruders and are mostly unwilling to complain to the administration of the country where the intrusions originate.

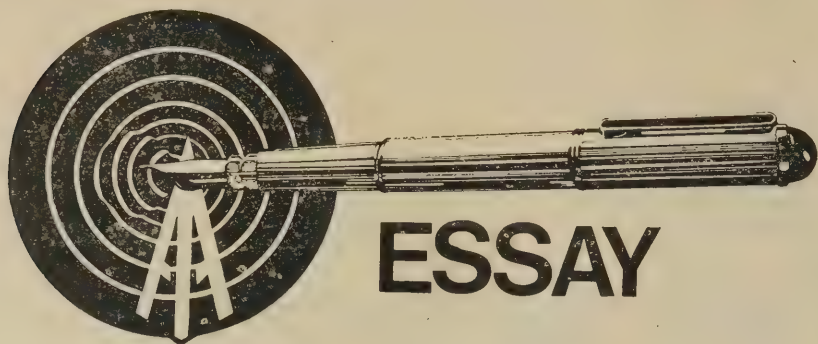
Despite the obstacles, Intruder Watch have succeeded in getting intruders to QSY. The main reason intruders get out of the amateur bands is not through local radio administrations but through directly approaching the stations concerned, Chandler would explain.

(Page 31 pls.)

PAUL V. NAR







ESSAY

Julio R. Viernes



THE CLOWN

He is the circus, he is the carnival; the holiday colors are his passion, the rhythm of the band his heartbeat. He lives off the crumbs of laughter dutifully tossed from the circle washed by the glare of his act. His is the act of submission — an act affirming the predicaments of his kind. Each awkward gesture, each inept attempt illustrates the frailties and the imperfections not unknown to his audience. And as he draws the pains of remembrances or possibilities to himself in self-deprecation, he absolves his spectators from all that which makes them lesser than gods. In the process, he earns the affection, so rarely bestowed, of those he cleansed.

While he solicits laughter, the face with the perpetual grin laughs too at an act he plays only for himself. People and emotion are reduced into spheres of uncertainties, like the frantic balls in the hands of the juggler. Each rise and fall, each complete or-

bit in the deft manipulation repeats the question: who is the king and who is the knave? On the sawdust floor, pinned by the harsh intensity of the lights, he answers his question, offering the absurdity of his existence as a clue and thereby appeases the crowd. And he laughs with silent ripple.

Sans the sawdust floor, the rings of seats and the blare of trumpets, the clown capers in every

corridor and alley, posing the question. In a different suit, his act is no less effective, sometimes feeding the indifferent lions with morsels of martyrs or painting the skyline with the red of his meanderings. In every season, there is a clown; Koestler saw him in a different costume and called him a crank. He persists in our consciousness, simply because he accepts that we reject. Seldom does he not succeed, pre-empting the validity of causes with visions of peace pieced together by our search for the sighs of relief. And when that moment became a nightmare, he cloaks the issues with the veil of a good joke.

He thrives on madness, on untrained quest for pedestal; or in the myopic vision of the ideal. Where man so believes that he can exise the fetters that bound him to earth, so he lives. With man's propensity of claiming praises for himself, the clown endures, sans the perpetual grin and the carnival.♦

1904.—January 20: The first press message was transmitted across the Atlantic.

August 15: The Wireless Telegraph Act of Great Britain was passed.

November 16: Professor J. Ambrose Fleming took out his original patent No. 24850 for thermionic valves.

1906.—January 18: De Forest was granted a patent for a vacuum rectifier, commercially known as the audion.

Second International Radio Telegraphic Convention was held at Berlin, and a convention was signed by a majority of the principal countries of the world.

General Dunwoody (U.S.A.) discovered the rectifying properties of carborundum crystals and Pickard discovered the similar properties of silicon crystals. These discoveries formed the basis of the widely used crystals detectors.

1907.—October 17: Transatlantic stations at Clifden and Glace Bay were opened for limited public service.

1908.—February 3: Transatlantic radio stations were opened to the general public for the transmission of messages between the United Kingdom and the principal towns of Canada.

In carrying out his invention Professor Fessenden constructed a high-frequency alternator with an output of 2.5 kilowatts and 225 volts and with a frequency of 70,000 cycles per second. Later Professor Fessenden reported successful wireless telephonic communication between his station located at Brant Rock, Mass., and Washington, D.C., a distance of about 600 miles.

1909.—The steamship *Republic*, after colliding with the steamship *Florida* off the coast of the United States on Jan. 23, succeeded in calling assistance by wireless, with the result that all her passengers and crew were saved before the vessel sank.

1910.—The steamship *Principessa Mafalda* received messages from Clifden at a distance of 4,000 miles by day and 6,735 miles by night. On Apr. 23 the Marconi Transatlantic (Europe-America) service was opened.

June 24: Act approved by the United States Government requiring radio equipment and operators on certain passenger-carrying vessels.

1911.—July 1: Radio service organized in Department of Commerce and Labor to enforce the act of June 24, 1910.

1912.—F. A. Kolster (Bureau of Standards) invented and developed the Kolster decimeter, which is used to make direct measurements of wave length and logarithmic decrement. This instrument has been used by the radio service of the Department of Commerce since it was invented.

Important Events in Radio

PEAKS IN THE WAVES OF WIRELESS PROGRESS

(Second of a Series)

Early in the year the American Marconi Co. absorbed the United Wireless Co., of the United States.

In February the Marconi Co., procured the patents of Bellini and Tosi, including those for the wireless direction finder.

On Feb. 9 the Australian Commonwealth station was opened.

On Apr. 15 the steamship *Titanic*, on her maiden voyage, struck an iceberg and sank, but, owing to the prompt wireless call for assistance, the lives of more than 700 of her passengers were saved.

The International Radiotelegraphic Conference opened in London on June 4 and approved important regulations to have uniformity of practice in wireless telegraph services. On July 5 the International Radiotelegraphic Convention was signed at London.

July 23: Act approved by the United States Government extending act of June 24, 1910, to cover cargo vessels and requiring auxiliary source of power, efficient communication between the radio room and the bridge, and two or more skilled radio operators in charge of the apparatus on certain passenger-carrying vessels.

August 13: Act approved by the United States Government licensing radio operators and transmitting stations.

1913.—F. A. Kolster submitted to the Government a paper pointing out the advantages of certain applications of radio signaling for use at lighthouse, lightships, and life-saving stations, especially in time of fog.

In June a wireless telegraph bill was presented to the Ottawa Parliament and passed under the title "Radiotelegraph act of Canada."

On Oct. 11 the *Volturmo* was burned in mid-atlantic, and in response to the wireless appeal 10 vessels came to the rescue, 521 lives being saved.

On Nov. 24 the first practical trials with wireless apparatus on trains were made on a train belonging to the Delaware, Lackawanna & Western Railroad.

The station at Macquerie Island was the means of keeping Doctor Mauson the Australian explorer, in touch with the outer world. Radio despatches were published in a small journal which was established, called the *Adelle Blizzard*.

1914.—Experiments in wireless telephony were carried out between several vessels lying at anchor five-eighths of a mile apart, ordinary receivers being used with success. The wireless telephone experiments were continued between two warships on the high seas, and the reception was consistently good over a distance of 18½ miles. Successful wireless telephone communications were effected later, using only very limited energy

(Page 33 pls.)

OUR NEW LOGO

We stepped in the world of Gutenberg late last year to record the events in amateur radio. Print and radio may, by their nature on the extremes of the media spectrum but they speak but one language: the language of understanding; of reaching out. Thus, we believe that a union may usher significant development in amateurism.

So too, we persisted in searching for *The Amateur Radioworld's* signature, in not too poetic a configuration or too lofty parallels. Thus our new logo, framed by the waves is our way of saying that we are receiving your message; and thus we answer by the smaller circles completing the cycle of what ideally is communications.

And with every amateur's desire to reach out with the geometry of antenna base, so did the staff hammered-out, trimmed and shaped our monograms to fit the base, defined within the concept of the pyramid or the delta and loped-off to capture the vitality of the directional arrow, both speaking of our ideals of growth and stability.

Our signature: it may be a very private symbol but it speaks of the very same ideals that weld amateurs in our age and dreams. ♦



TAR QUIZ

SOME BASIC QUESTIONS A HAM CANNOT IGNORE

For every question there is an answer. Pick out the one which answers the question best and have a feel of how you would fare in an exams the NTC gives.

- Aside from English and Pilipino, what is the other authorized medium of expression for use in sending/transmitting messages in the Philippines? a. Chinese; b. Vietnamese; c. Russian; d. Spanish
- The silent period is observed at least twice of each hour of operation. If the first silent period is done at 9:45 A.M. the second shall be observed at a. 10:15 A.M.; b. 10:45 A.M.; c. 9:45 A.M.; d. 9:45 P.M.
- The international distress signal for radiotelephony is: a. PAN; b. SOS; c. MAYDAY; d. SECURITE repeated 3 times.
- When a radio network is on frequency sharing, tests must be made a. with long conversation between technicians; b. brief and done when frequency is not in use; c. under the supervision of a second class operator; d. longer than a 100 word message.
- When working through interference and fading signals, it is necessary to a. transmit faster; b. transmit slowly; c. transmit call sign every after a word; d. leave the station.
- Under international regulations, a. unnecessary and superfluous signals; b. emergency notices and warnings; c. commercial messages; d. private messages are forbidden.
- If circumstances permit, immediately before a crash or forced landing, radio apparatus must be a. switched off; b. destroyed; c. set for continuous emission; d. tagged for identification.
- The international distress frequency is a. 1,000 kHz; b. 700 kHz; c. 500 kHz; d. 600 kHz for radiotelegraph.
- An operator whose license or permit was lost should a. notify the Bureau of Telecommunications; b. notify the National Telecommunications Commission and apply for a duplicate license; c. notify the National Telecommunications Commission and take another examination; d. wait for the expiration date of this license and file an application for renewal.
- Transmitters or transceivers which are unserviceable and are not intended to be repaired or reconditioned should be a. used for training provided that it is serially numbered by the school; b. condemned and registered with the National Telecommunications Commission; c. stock piled and serially numbered then transferred to another location; d. reported to the Bureau of Telecommunications.

(Answers on page 33)

Since over 20 years, high quality HOXIN antennas were loved universally in the world. The quality is fully guaranteed by the engineers having profound knowledge and long experience. Enjoy using corrosion-free, solid HOXIN antennas.

GPV-5 (144MHz)

6.5dB, 5/8λx2, Colinear type ground plane antenna

Extremely low loss, DC grounded for lightning protection

Length: 3,100mm/mm, Weight: 1.5kg

36-2F (144MHz)

1/4λ, Omini-directional ground plane antenna

All weather proof, Max. operation power: 200W PEP, Element length: 500mm

Weight: 850g

36-6F is for 50MHz, 36-10F is for 27~28 MHz and 36-4F is for 80MHz band.

GPV-720 (144 & 430MHz)

Unique 2 bands ground plane.

DC ground system protects equipment from lightning.

Gain: 144MHz ~ 2.8dB, 430MHz ~ 5.7dB

Overall height: 1,100mm, Weight: 895g

GDX-1 (80~480MHz)

DISCONE, Covers extremely wide band.

Having the features of low dispersion angle, this is idealistic for DX communication like aeronautic, military field, as well as for "watch" antenna.

Height: 1,000mm, Weight: 2.6kg

GDX-2 is for 50~480MHz

HF5DX (HF 5 band)

Covers five HF bands, 3.5, 7, 14, 21 and 28MHz.

Using one trap only, it is compactly designed for installation to the narrow space.

Overall height: 6,600mm, Weight: 4.7kg

HF-5 is self stand type without radials.

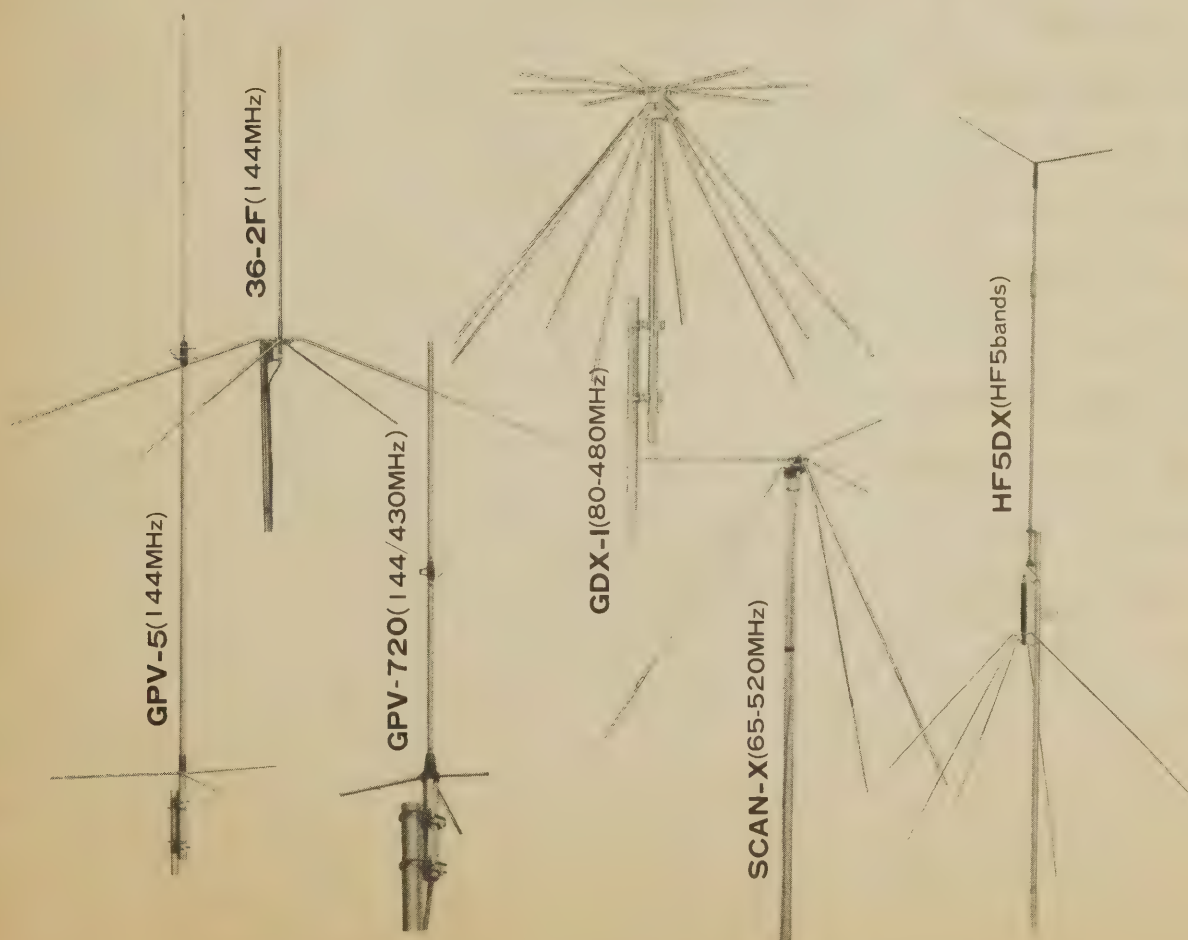
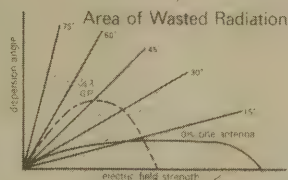
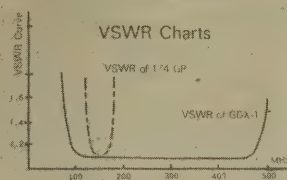
HF-5R is radials only.

SCAN-X (65~520MHz)

Discone type scanner use antenna

Designed for receiving wide band for FM, TV, VHF/UHF

Option: Additional use of Duplexer (DPX-1) is available for using both radio and scanner.



IARAC . . .

. . . the task of setting up a viable singular national organization as deemed by the regulating government agency becomes sort of a travel by a backroad whose conditions are dictated by the weather: dusty when hot and muddy when wet. Either way, there is always discomfort.

have worked hard appreciating one's goodness and righteousness upon which decisions must be made to forge a new order, if inevitable. The tension that filled the place moments before would somehow fade. And compromises seemed very remote to serve as matrix for charting future courses, someone was overheard telling a pal.

The meeting-proper finally went its course. Short comments were first heard from the Deputy Commissioner. . . then Commissioner Carreon himself delivered a short speech.

The Commissioner tried hard to define NTC's position vis-a-vis the organizational set up of radio amateurism in the country. "You must work, yourselves, to regulate yourselves. . . while NTC monitors you all and implements radio rules. . ." was the theme of the Commissioner's speech. Then came the NTC's call for the formal composition of the IARAC and the election of its officers. Engr. San Juan was to preside first until a chairman and a secretary were chosen by the members of the council themselves. Mr. Poblador and Atty. Gonzales were to be voted upon as chairman and secretary, respectively.

At this juncture, when Mr. Poblador was to assume the responsibilities of a presiding officer, the Commissioner and his Deputy took leave, announcing they were relinquishing the entire proceedings to the council. They maintained that they were not principal to this affair, but acted only as representatives of a government agency tasked with monitoring amateurism. They added that anyway, Engr. San Juan and his two young engineer-assistants would remain to moderate the conduct of this particular ham affair.

And so the Commissioner and his Deputy left which was apparently against the wishes of the majority of the hams present.

Thereafter, bursts of some protest and complaint and sarcastic remarks would spice the proceedings. Tension could be hardly contained at some points. In the thick of the proceedings came, therefore, the picture of an apparent conflict between PCARS and PARA.

Yet in the midst of all these was: "We can still act as civilized and reasonable beings, can't we?" The caution came from the cerebral representative of District II. Contained laughter would cause some sparkle in the eyes of Mr. Donnie Poblador and Mr. Jose Mari Gonzales. Some undefined smile would hide in a corner of Mr. Jose "Golden Heart" Tupaz' lips.

Notwithstanding the conflict, every ham present would still accept the idea that after all the vision of the ham-world should, in this context, be an "adjusted" society wherein everyone could be polite to each other, and could suppress whatever ill-feelings one has towards somebody else.

And during the final minutes of the meeting, when the issue on the table was the selection of a name for the Interim Council, it was resolved by election that "PARA" would be adopted as the name of the "national organization." This was the picture reflected in that process.

On this, PARA and PCARS had some good contest, "each having its own fill of jockeying to get the better score. . . and PARA would have it by two points more garnering a total of 5 out of probable 11 votes, while PCARS would settle for 3." District I went for PARA, so did Districts II, VI, VIII and the representative of PARA. On the other hand, District IV went for PCARS and so did District IX and the "Golden Heart" of PCARS. District III would abstain, while District V could not have a voting right on account of failure to meet requirements asked for by the NTC.

And the winner is. . .

PARA couldn't, of course, be happier at the moment over the outcome of the meeting. On the other hand, PCARS appeared blue. But then the "Golden Heart" and his colleagues would nevertheless manage to be statesmen-like. Like true sports, their president started to even politely distribute certificates of "oath of office" he himself had fashioned as his donation to the council, and went on to accept the offer of handshakes from the PARA helmsman and his group.

"For is it not," somebody was heard quipping, "the radio amateur's positive measure to be on polite terms with his fellow amateurs?"

Out of some conflicts, mollified by politeness, came therefore the curious formation of the Interim Amateur Radio Advisory Council, as defined by the NTC.

But, alas, the "unfinished business" would not stop there. . .
(To be continued)



TURN THAT CB MOBILE WHIP TO A 5/8 2-METER ANTENNA

ADVISOR

Rod del Rosario, DU1ROD

Probably the most popular mobile antenna being used by the 2 meter FM gang is a base loaded 5/8 wavelength vertical. Commercial versions of this type-antenna are currently in the P450.00 to P700.00 class. One way to save about half the cost is to modify a CB mobile-whip antenna. We will skip explanations on the theory of a CB mobile antenna and why it is cheaper than ham antennas.

The whip that was chosen for this modification is a Hokoshin black antenna, but there are similar brands which can be converted as long as the whip is in the range of 38 to 39 inches. The antenna consists of a clamp-on trunk mount, a base leading coil, and a 39-inch whip.

The modification consists of removing the loading coil inductance, winding a new coil, and mounting a disc capacitor in series with the hot end of the coaxial cable. The capacitor is used for obtaining a precise match in conjunction with the base coil tap.

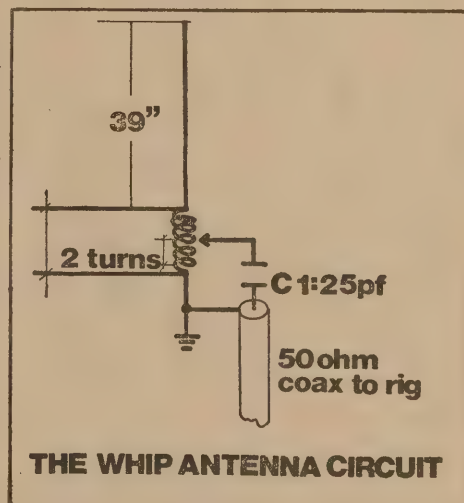
The first step is to remove the weather-proof phenolic covering from the coil. Remove the base housing and clamp the whip side of antenna in a vise. Insert a knife blade between the edge of the whip base and the phenolic covering. Gently tap the knife edge with a hammer to force the housing away from the whip section. Proceed carefully, working around the edge of the phenolic covering until it starts to loosen. You'll find that the housing comes off quite easily.

Next remove the coil turns and wind a new coil using a No. 12 wire. The new coil should have nine turns, equally wide spaced. The tap point is two turns from the base (ground) end of the antenna we modified. The capacitor is soldered on the tapped point and a coaxial cable is connected.

Initially, the tap on the coil was tried three turns from the bottom. The antenna was mounted on a car, an SWR bridge was inserted in the feed line and C1 and the whip height were adjusted for a match. A match was obtained, but when the phenolic cover was placed over the coil, it was impossible to obtain an adjustment that provided a match with C1 and the whip height. Apparently the dielectric material used in the coil cover has an effect on the coil. After some experimenting it was found out that with the tap two turns up from the bottom, and with the cover over the coil, it was interesting to note that mounting the antenna at different points on the car required a readjustment of C1 in order to obtain a match. The value of C1 can be obtained by experimenting with various capacitance within the range of 3 to 30 pf. In the antenna we modified the value we used was 25 pf. Different cars would require different capacitance of C1.

Several tests were made comparing the 5/8 wave antenna to a quarter-wave whip. Both antennas are omnidirectional, but the 5/8-wave vertical have a 3-db gain over a quarter wavelength whip. The gain results from the lower angle of radiation

common to 5/8-wave configuration. We made no actual gain measurements, but it was very apparent that the 5/8-wavelength vertical was a better performer. In several instances when operating near the fringe area of a repeater, it was possible to work into the repeater with the 5/8 wave vertical, but impossible with a quar-



ter-wave whip. Another advantage in using the 5/8 wave antenna is the absence or marked reduction in mobile "flutter" so pronounced using a quarter-wave whip. Another test we made was placing the antenna on a chair and trying to make some contacts, we were able to work mobile stations as far as Bulacan but when we switched to the quarter wavelength whip contact was lost. The test was made in the area of the Sampalok lake in San Pablo City, Laguna.♦

NOTES ON . . .

The following basic step by step procedure shows the computation of the shorter great circle route between Manila, of latitude 14 deg 36 min N, longitude 121 deg 05 min E, and Rome, Italy at latitude 41 deg 54 min N, longitude 12 deg 29 min E.

By Napier's analogies,

$$\tan \frac{1}{2}(B + A) =$$

$$\frac{\cos \frac{1}{2}(b-a) \times \cot \frac{1}{2}C}{\cos \frac{1}{2}(b+a)} \quad \text{Eq. (a)}$$

$$\tan \frac{1}{2}(B - A) =$$

$$\frac{\sin \frac{1}{2}(b-a) \times \cot \frac{1}{2}C}{\sin \frac{1}{2}(b+a)} \quad \text{Eq. (b)}$$

$$\tan \frac{1}{2}c =$$

$$\frac{\sin \frac{1}{2}(B+A) \times \tan \frac{1}{2}(b-a)}{\sin \frac{1}{2}(B-A)} \quad \text{Eq. (c)}$$

(1) Compute the co-latitudes of both places. This is done by subtracting the latitude from 90 degrees.

Manila (A)

$$\begin{array}{r} 90 \text{ deg} = 89 \text{ deg } 60 \text{ min} \\ (-) 14 \text{ deg } 36 \text{ min} \\ \hline 75 \text{ deg } 24 \text{ min} = b \end{array}$$

Rome (B)

$$\begin{array}{r} 90 \text{ deg} = 89 \text{ deg } 60 \text{ min} \\ (-) 41 \text{ deg } 54 \text{ min} \\ \hline 48 \text{ deg } 06 \text{ min} = a \end{array}$$

(2) The point with the greater co-latitude is A and the other point B. Thus Manila is point A and Rome point B. The co-latitude of A is the side, b, opposite the angle at B of the spherical triangle, and the co-latitude

of point B is the side, a, opposite the angle at A. See sketch.

(3) Compute the difference between the co-latitudes.

$$\begin{array}{r} 75 \text{ deg } 24 \text{ min} \\ (-) 48 \text{ deg } 06 \text{ min} \\ \hline 27 \text{ deg } 18 \text{ min} = (b-a) \end{array}$$

(4) Compute $\frac{1}{2}$ the difference between the co-latitudes in (3).

$$\begin{array}{r} 27 \text{ deg } 18 \text{ min} \\ 2 \\ \hline = 13 \text{ deg } 24 \text{ min} \\ = \frac{1}{2}(b-a) \end{array}$$

(5) Compute the sum of the two co-latitudes

$$\begin{array}{r} 75 \text{ deg } 24 \text{ min} \\ (+) 48 \text{ deg } 06 \text{ min} \\ \hline 123 \text{ deg } 30 \text{ min} = (b+a) \end{array}$$

(6) Compute $\frac{1}{2}$ the sum of the co-latitudes in (5)

$$\begin{array}{r} 123 \text{ deg } 30 \text{ min} \\ 2 \\ \hline = 61 \text{ deg } 45 \text{ min} \\ = \frac{1}{2}(b+a) \end{array}$$

(7) If the half-sum of the co-latitudes in (6) above, is greater than 90 degrees, the reduced half sum is found by subtracting the half-sum from 180 degrees. This is to be able to obtain the value of the sine of the half-sum, as $\sin(180 - \text{half sum}) = \sin \text{ of half sum}$.

(8) Compute the difference in longitudes. If the longitudes are both East or both West, take the difference of

The angle NAB is the bearing of B from A and the arc AB is the (shortest) distance between A and B, the arc of a great circle joining the two points. When the latitudes and the longitudes of the two places A and B are known, the sides BN and AN, and the angle ANB of the spherical triangle BNA are known. By solving the spherical triangle BNA, the distance between A and B and also their bearings from each other can be computed.

The formulas known as Napier's analogies are conveniently used and the computations involved in the following outline is a case when the two stations are both north of the equator.

Computations of great circle azimuth also involve cases where;

(a) the transmitting and receiving points are both south of the equator, and

(b) one station is north and the other station south of the equator.

The formulas known as Napier's analogies in spherical trigonometry are conveniently used in determining the beam heading for a transmitting station, A, to a receiving station, B, and the distance between the two places along a great circle.



the two longitudes. This gives the value (B-A), of the included angle of the spherical triangle.

Manila

$$121 \text{ deg } 05 \text{ min} = 120 \text{ deg } 65 \text{ min}$$

$$\begin{array}{r} \text{Rome} \\ (-) \quad 12 \text{ deg } 29 \text{ min} \\ \hline 108 \text{ deg } 36 \text{ min} \end{array}$$

If however, one longitude is East and the other is West, take the sum of the two longitudes.

(9) Reduce the difference of the longitudes. If the result of (8) above is greater than 180 degrees, subtract it from 360.

(10) Take $\frac{1}{2}$ the reduced difference of longitudes in (8) above.

$$\frac{108 \text{ deg } 36 \text{ min}}{2} = 54 \text{ deg } 18 \text{ min} = \frac{1}{2}C$$

$$\begin{aligned} (11) \text{ Find } \sin \frac{1}{2}(b-a) \\ \sin \frac{1}{2}(b-a) \\ = \sin 13 \text{ deg } 24 \text{ min} \\ = \sin 13.4 \text{ deg} \\ = 0.23174 \end{aligned}$$

$$\begin{aligned} (12) \text{ Find } \sin \frac{1}{2}(b+a) \\ \sin \frac{1}{2}(b+a) \\ = \sin 61 \text{ deg } 45 \text{ min} \\ = \sin 61.75 \\ = 0.87840 \end{aligned}$$

$$\begin{aligned} (13) \text{ Find, in (4)} \\ \cos \frac{1}{2}(b-a) = \cos 13 \text{ deg } 24 \text{ min} \\ = \cos 13.4 \text{ deg} \\ = 0.97271 \end{aligned}$$

$$\begin{aligned} (14) \text{ Find, in (6)} \\ \cos \frac{1}{2}(b+a) = \cos 61 \text{ deg } 45 \text{ min} \\ = \cos 61.75 \\ = 0.47331 \end{aligned}$$

$$\begin{aligned} (15) \text{ Find, in (10)} \\ \cot 54 \text{ deg } 18 \text{ min} = \cot 54.3 \text{ deg} \\ = 1 / \tan 54.3 \\ = 1 / 1.3916 \\ = 0.71859 \end{aligned}$$

$$\begin{aligned} (16) \text{ Substitute values found in (13),} \\ (14) \text{ in Eq. (a)} \\ \tan \frac{1}{2}(B+A) = 0.97297 \times 0.71859 \\ \quad \quad \quad \frac{0.47331}{1.47718} \\ \frac{1}{2}(B+A) = 55.903 \text{ degrees} \\ (B+A) = 111.80 \text{ degrees} \end{aligned}$$

$$\begin{aligned} (17) \text{ Substitute values found in (11),} \\ (12) \text{ and (15) in Eq. (b)} \\ \tan \frac{1}{2}(B-A) = 0.23174 \times 0.71859 \\ \quad \quad \quad \frac{0.87840}{1.0592} \\ \frac{1}{2}(B-A) = 10.73 \text{ degrees} \\ (B-A) = 21.46 \text{ degrees} \end{aligned}$$



(18) Solve values of A and B

$$2B = 133.26$$

$$B = 66.63 \text{ degrees}$$

$$B+A = 111.80$$

$$\begin{aligned} A &= 111.80 - 66.63 \\ &= 45.17 \text{ degrees} \end{aligned}$$

(19) Azimuth equals $360 - 45.17 = 314.83$ degrees, the true heading of Rome from Manila.

(20) Substitute values found in (16), (17) and (4) in Eq. (c)

$$\tan \frac{1}{2}c = \frac{\sin 55.90 \times \tan 13.4}{\sin 10.73}$$

$$= \frac{0.82806 \times 0.23823}{0.18623}$$

$$= 1.0592$$

$$\begin{aligned} \frac{1}{2}c &= \arctan 1.0592 \\ &= 46.64 \text{ degrees of arc} \end{aligned}$$

$$\begin{aligned} c &= 93.29 \text{ degrees of arc} \end{aligned}$$

Since 1 degree of arc on the earth's surface is approximately 69.1 miles long, therefore the distance from Manila (A) to Rome (B) equals 93.29×69.1 or 6446.34 miles.

We shall recall a few definitions of the following terms used, as:

A **great circle** is a circle on the surface of the earth (a sphere), the plane of which passes through the center of the earth, thus dividing the earth into two equal hemispheres. It is important to remember that the shortest distance between any two points on the surface of the earth is the arc of a great circle joining the points.

The **latitude** of any point is its angular distance measured 0 degrees to 90 degrees North or South of the equator to the poles along a meridian and is expressed in degrees, minutes and seconds.

The **longitude** of any point is the arc of the equator intercept between the meridian passing through the point and the **prime meridian** passing the observatory of Greenwich in England.

Meridians are great circles which pass through the poles. The equator intersects the meridian perpendicularly. The **prime meridian** is the meridian used as an origin for the measurement of longitude.

A transmitter's position on the earth's surface is related to a receiver on another point by the difference in latitude and the difference in longitude between them. For purposes of this study, however, the direction of the receiver from the transmitter's position is determined by the angle at the transmitter between its meridian and the great circle passing through the transmitter and the receiver. This angle is termed as the **true bearing** or **azimuth** of the receiver.

A map or chart may also be used in the determination of the true bearing of the receiving station from the transmitting station.

The above computation has already been programmed for use on the Casio FP 1000 and the TRS 80 by the writer, and these programs are available for publication in the future issues of The Amateur Radioworld. ♦



WHAT'S ON SHORTWAVE?

WAVESCAN

Luis Sevilla, SWL



DX NEWS

Austrian Radio was logged several times last March on 15270 kHz in the 19-m. band at 0830 until 0900 HR. Its 30-minute program, called "Report from Austria" consists of news and feature programs about Austria. Listeners who might want to know its transmission times and frequencies should write to: Austrian Radio, Shortwave Service, 01136 Vienna, Austria.

Vatican Radio is back again at its former transmission time and frequencies in its broadcast to our area. Using a frequency each in the 16 and 31-m. bands, it is heard in English at 2205 to 2225 HR. daily, with strong signal's especially in the 31-m. band. Just before the announcement of its identification, i.e., a few minutes after 2200 HR., its interval signal (the ringing of the bells of St. Peter's Basilica) is played.

Radio Netherlands, despite its several transmissions in English to Asia and Australia, is best heard at 1430 HR. on 21480 kHz. It also uses two parallel frequencies of 17605 and 11735 kHz. Although the transmission is relayed via its station in Antananarivo, Madagascar from Hilversum, Holland thru satellite links, signals are very strong and clear.

Radio Budapest in Hungary uses a frequency in the 31-m. band from 2200 until 2300 HR. The programs are in Spanish. The transmission is probably directed to some parts of Europe and South America. Its signals have been noted to be fair.

Radyo Pilipinas, the Voice of the Philippines (VOP), our country's external service on shortwave, is back in operation again. It was noted with music on 9580 kHz at about 0800 HR. on March 7.

The Voice of America (VOA) has reactivated its transmitting station at Dixon, California, to provide

stronger signals for listeners in Central and South America. This station opened in 1944 and was used to broadcast programs to the Far East and to Latin America. Several years ago, when VOA shifted to using satellites for its relays, operation of this station was stopped.

The Dixon station is now beaming a total of more than five hours of Spanish programming per day in the morning and evening hours. The programs originate from Washington, D.C. and are relayed to this station by satellite. The signals are strengthened and retransmitted by shortwave to listeners in countries south of the U.S.

Radio Australia, the Overseas Service of the Australian Broadcasting Corporation, gives out a Program Guide and Transmission Schedule regularly. It lists down in detail Radio Australia's programs, times and frequencies and even transmitter locations and antenna bearings. Interested listeners may write to: Radio Australia, Melbourne, 3000, Australia.

Radio Japan has a monthly publication summarizing its program formats. The "Radio Japan News" also contains accounts of important events in Japan or topics and features about Japanese life. This publication is given free of charge. Listeners may just write to: Radio Japan, Nippon Hoso Kyokai, Tokyo, Japan. Incidentally, this station always reminds listeners to send reception reports which are verified with beautiful QSL cards.♦



STATION NEWS

Radio Beijing (Peking) and the **Deutsche Welle**, the Voice of Germany, have recently strengthened their cooperation agreements. High ranking representatives of the Chinese station just visited and toured the technical facilities in the new Broadcasting House in Cologne and the shortwave transmitting station at Ju-

lich of the latter. Since 1981, these stations have been exchanging radio journalists. In their new agreements, the co-productions of radio programs have been increased.

Deliberate interference or jamming has been very prevalent during the past several weeks. The Russian "Woodpecker" has been very active, rampantly damaging other stations' broadcasts. I "caught" it interfering with signals of Radio Australia, BBC, VOA, the Deutsche Welle, Israel Radio and Radio Japan several times.

The most recent discovery I made is that it interferes not only with the "big" stations but even "smaller" ones as well as other services in the high frequency spectrum. One station just victimized is the **Far East Broadcasting Company**. FEBC's domestic service on shortwave, DZH6 on 6030 kHz was very much affected by "Woodpecker" on March 29 at about 2205 until 2217 HR. The program being aired was "Maunlad na Magsasaka" hosted by Nick Reyes. The program, which is heard nationwide, is government-sponsored. It should be noted that FEBC is an organization engaged in radio ministry and does not involve itself with things political. However, FEBC has powerful stations in Iba, Zambales, broadcasting daily programs proclaiming the Gospel to the Soviet people in their own languages. Likewise, the same facilities are used for direct broadcasts to China.

It is surprising and annoying, not only to shortwave listeners but to hams as well, that jamming is so widespread and sporadic in the high frequency spectrum. Can't Western governments and broadcasting organizations do something about this? Will jamming be continuously used as a political weapon by those governments in the opposite ideological system?

Until next issue, I wish you good DX'ing (less the jamming!) and 73.♦

EDITOR'S NOTE: Time used are in Coordinated Universal Time.)

INTRUDER WATCH . . .

Bureaucracy, somehow, gets the better part of government action. Domestic government radio administrations first have to monitor reported intrusions, confirm the reports, ascertain many things and in the process lose the complain in the heap of everything intended to be done. Complaints are therefore rarely made.

Be that as it may, Intruder Watch have had some modest successes through the years.

Sometime ago, for instance, Chandler and several other hams were able to get the "Radio of the Koran" in Saudi Arabia to QSY from 21.435 MHz. This they did by writing directly to station management. British amateurs have also been successful in moving Radio Cairo from 7050 kHz by employing the same "direct approach" method.

But the nagging role of the government persists. What does it take for an action on this matter?

An Australian radio officer says: "We need absolute positive identification. It has to be monitored by our own monitoring stations and without this we cannot act." Meanwhile, the intruder enjoys a field day.

It is obvious then that without Intruder Watch amateur bands can easily be a "no man's land" or an air-lane Bronx.

Presently, the service has a small number of active members throughout Australia and New Zealand. More observers are needed.

There are Intruder Watch coordinators in most Australian states, the Northern territory, New Zealand. A Federal coordinator is also around. And these guys are only too willing to receive inquiries about Intruder Watch. A weekly net on 3540 kHz each Thursday at 2030 AEST would be an easy way in.

For a worldwide network, Alf Chandler also keeps regular reports exchanges with K6KA in Los Angeles, USA (28.555 MHz, 0900 AEST, Wednesdays); ZLiBAD (14.165 MHz, 0800 AEST, Thursdays); and G5XB (14.270 MHz, 1715 AEST, Mondays).

Chandler advises that when logging a suspected intruder, one should make sure he notes the date, time, frequency and mode of the intruding transmission. Special report forms are available from coordinators for this purpose.

While intruder watching is in itself something novel, it is rather ironical that amateurs are forced to adopt a policing role for their bands which have been allocated with exclusivity.

"The mode is very important" in this operation, Chandler would stress. He notes that not all amateurs are conversant with all the modes. Chandler has an identification tape with samples of most of the modes which can be supplied on request (send him a blank tape with a stamped, self-addressed envelope at IARU Region 3 IWC, VK3LC, 15 Point Ave., Beaumarie 3193, Australia).

Most broadcast and government stations are identified by their call signs which are required under international radio regulations. Those who don't use call signs can be identified by other means, such as their operating procedure. For instance, Russians use the Cyrillic Alphabet, Japanese the Kata Kana code, the Chinese the procedural two-letter groups instead of the Q-code.

With the increased availability of computerized RTTY equipment and surplus teleprinters, intruder watchers have recently been able to more easily identify radio-teletype intrusions. Broadcasters are usually not hard to identify because they often use a distinctive tune at the commencement of transmission or have a sign-on spiel.

Alf Chandler says that someone who hears a broadcaster in an exclusive amateur segment could take some time listening to get the start of transmission and the station's identity.

One frequent broadcast intruder is Radio Peking on several frequencies in the 7 MHz band. Unfortunately, this station doesn't take the hint when sent a complaint of intrusion by an Intruder Watch observer.

"They'll send back a nice QSL card and often a calendar," remarks Chandler.

No Easy Task

Definitely, the road to success is not paved, much more does it run downhill. But Chandler and his persistent Intruder Watch teams are not giving up and the Foreign Affairs people have been asked to help get the message to Radio Peking that it's broadcasting where it has no right to be.

Some intrusions, though, are the result of harmonics and spurious radiations. "If you get in touch with the station engineer in such cases, they'll very often do something about it because such radiations, if they are very potent, will take a certain amount of power away from the fundamental frequency," Chandler elaborates. He points out that broadcast intrusions on 28 MHz are mostly harmonics of stations on 9 MHz and 14 MHz.

In a more complete account of Intruder Watch, Jim Linton (VK3VKC/VK3PC) clarifies that Intruder Watch does not get involved with complaints about unlicensed operations or CB-type intrusions on 28 MHz. Anyone wishing to have action against these brand of intruders will have to complain directly to their local telecommunications radio inspector.

Clearly, it takes a lot of guts, selflessness and determination even outright sacrifice to be a radio amateur vigilante. ♦

WARC '84 ...

through the "two-stage conference." More than 500 delegates from 115 broadcasting nations attended this gathering. In this conference, various problems were presented and somehow provided some solutions.

One problem tackled up concerned statics, atmospheric and man-made noises. Although such problem is essentially "inert" or part of the medium, nonetheless, various solutions were offered. One suggestion was to make use of computers. The proponent stated that for a period of time, countries have relied on the intelligence of man and the rather primitive methods of computing how signals operate and frequency distribution hadn't been any better. It was suggested that a period of two years be set aside during which tests will be made on how frequencies can better be distributed using computers. With computers and active analysis of frequency operation, problems on efficient frequency distribution and band congestion, may be scientifically probed.

Would a sophisticated computerized system be of use to developing countries? was the next most logical question raised. Some developing countries not only use shortwave for external services but for national internal radio networks. In fact, developed countries, also make use of this practice. Long distance broadcasts in shortwave have been playing an important role in their development. Shortwave radio is as capricious as well as an unpredictable medium. Every country wants access to it. They want to be heard nationally and outside their borders. Over a hundred countries are in this practice hoping to satisfy their communication needs.

Computers might find their application in frequency allocation or distribution but the problem that remains unsolved is that there is no more space or bands available. The multiple use of frequencies by a number of stations for a particular broadcast is a problem consequent of poor frequency allocation. It is only when this problem is licked that stations might stop the practice.

The problem on deliberate interference or jamming finds no solution yet in as much as this is resorted to by some countries for political conveniences.

WARC '84: No Mean Task

Despite the complexity of the problems taken up, WARC '84 arrived at certain agreements. There were three important agreements forged. One was that a better means of allocating frequencies will be tried out. Countries will declare which part of the world they want to beam their broadcast signals and at what times. The ITU's computers will select frequencies which can most nearly satisfy every country's request. Another

positive result in the conference was that the frequency should suffer less from interference as a result of some new agreements on technical standards of transmission. And this, conversely, should mean that broadcasters will get satisfactory results using maybe one or two frequencies for each area. This plan for optimum frequency usage is to be presented to the second stage of the conference in 1986. In addition, broadcasters will henceforth monitor the extent to which their transmissions are affected by deliberate interference—and the results of this survey will be presented in two years time.

Lastly, the system of broadcasting will utilize single-side band (SSB) and this is to be introduced over a period of 20 years. The starting date will be decided in 1986. Using SSB means using new transmitters which will make it possible to double the number of transmissions in the shortwave bands.

WARC '84 was a strenuous conference, marathon-like and pregnant with arguments. In the end, though, eventful agreements were reached and some real progress towards reducing band congestion was achieved.

The ITU member-countries will now be preparing for the 1986 conference which may, at long last, adopt a shortwave broadcasting plan. The plan may, after all, work technically, but the political problem which seem undivorceable from shortwave broadcasting has no solution in sight. And the ITU is definitely powerless to settle political problems even if it involves electronic communications.

Meanwhile, developments in electronic communications continue to complement our modern world. The advent of radio and TV cable systems are now fads in many countries. Similarly, satellites capable of broadcasting directly into one's living room no longer hold surprises in industrialized countries. Yet shortwave remains to be unreplaceable. "Old reliable" is cheap, fast and easy. Rapid technological growth in this field of electronics, have yet to compose a requiem for shortwave broadcasting. Its reliability, cost, effectivity and efficiency are yet to be seriously challenged—statics, atmospheric, jamming considered. ♦



CAGAYAN DE ORO AMATEUR RADIO ENTHUSIASTS

District IX

Cagayan de Oro City
Philippines

HAM 10

District IX

Cagayan de Oro City
Philippines

R.F. PROBLEMS...

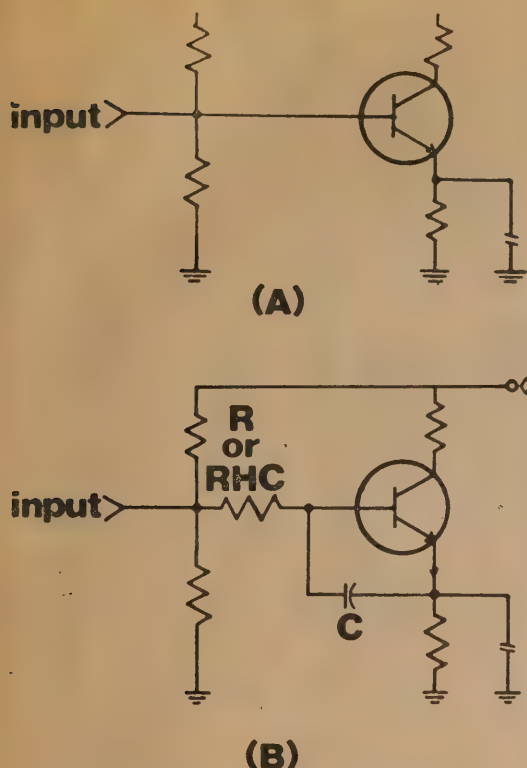


Fig. 5 — A normal input stage is illustrated at (A). In (B) note where components R and C have been added.

ment, this will be rectification taking place at the base-emitter junction of a transistor. Usually, it will be the transistor in an input, but R.F. could be affecting more than one state. Sometimes with the help of an oscilloscope it is possible to isolate the state that is being affected. The cure is bypassing directly around the base-emitter junction of the state. The bypassing should not be to ground, since the emitter capacitor may not present a low reactance at R.F. frequencies. Bypassing is the most effective measure, although placing a resistor or R.F. choke in series with the base lead may also be helpful. Figure 5 gives a typical application with some suggested component values for various bands.

The same technique can be applied to IC stages. If, for instance, the input signal goes to the non-inverting (+) input of an IC operational amplifier, one can place a resistor or choke in series with this lead and a suitable capacitor directly from the non-invert-

ing (+) pin to the inverting (—) input pin. There is also another interesting cure for transistor input stages that one might keep in mind. Germanium-type transistors have generally much poorer high frequency gain than silicon types. So, by changing an input stage to old generation germanium transistor, which has adequate a.f. gain but poor h.f. gain, one can often prevent R.F. problems in low-level audio states.

This article has tried to present a more or less orderly approach to getting rid of undesired R.F. starting with overall shielding measures and then working down finally to individual stages. In reality, of course, one tends to try the easiest possible cures first. And often after elaborate shielding measures have been taken, one finds that a simple bypass capacitor in the right place was all that was needed. There is no doubt that curing R.F. problems can be very frustrating. But, it is also equally true that with a combination of imagination and persistence, 90% plus of undesired R.F. problems can be solved. ♦

PEAKS...

between vessels on the high seas 44 miles apart.

High-powered transoceanic stations were completed at Carnarvon, Wales, Belmar, Honolulu, and San Francisco during the autumn of 1914. The Honolulu-San Francisco stations were opened to public service Sept. 24. The Tuckerton-Eilvese and Sayville-Nauen stations were in operation about this time.

Most of these stations made use of the latest developments in the art, using undamped and long waves as produced by the Poulsen arc and the radio-frequency alternator.

On Oct. 6, E. H. Armstrong was issued a patent covering the regenerative circuit also known as the feedback and the self-heterodyne circuit.

1916.—During the course of a severe blizzard in the United States during February wireless telegraphy was extensively used for train dispatching as the telegraph wires were down.

The determination of the difference in longitude between Paris and Wa-



shington with the aid of radio which had been in progress since Oct., 1913, was completed during May, the result, expressed in terms of time, being 5 hours 17 minutes 35.67 seconds, and has a probable accuracy of the order of 0.01 second.

The initiation of the newly established trans pacific wireless service between the United States and Japan was celebrated on Nov. 5, by an interchange of messages between the Mikado and President Wilson.

1917.—June 2 marked the "coming of age" of wireless telegraphy in England, that is, that 21 years had elapsed since the registration of patent 12039 in 1896.

(To be continued)

Answers to TAR QUIZ

1. d — Spanish
2. a — 10:15 A.M.
3. c — MAYDAY
4. b — brief, and done when frequency is not in use
5. b — transmit slowly
6. a — unnecessary and superfluous signals
7. c — set for continuous emission
8. c — 500 kHz
9. b — notify the NTC and apply for a duplicate license
10. b — condemned and registered with the NTC

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To somewhat complement that R.F. energy issue, TAR now reprints a detailed article on the subject by CQ magazine writer John Schultz, W4FA who notes that: "Almost every amateur experiences the frustration of trying to solve R.F. problems in the shack." Here, W4FA points out that "grounding units may not be a solution. . ."

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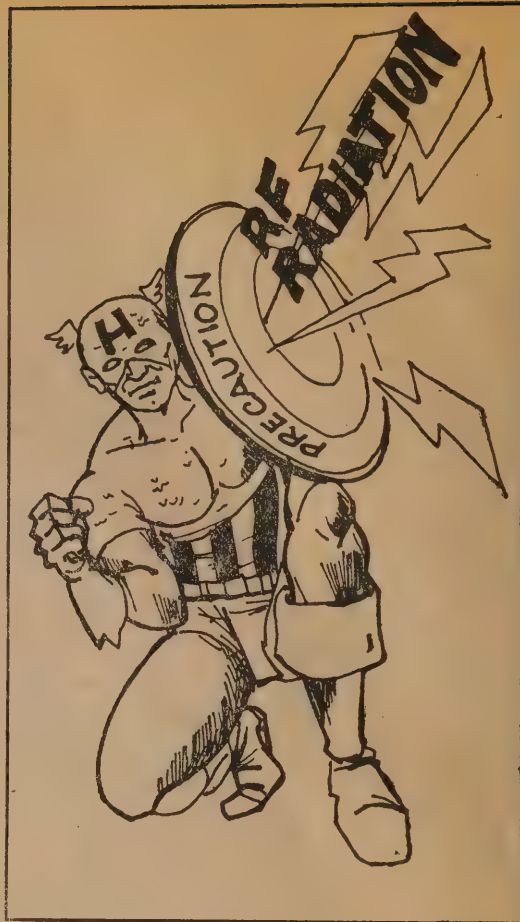
The fun of radiating R.F. quickly turns into a sour experience when some of the R.F. feed back into accessory items that one is using with a transceiver. The cost of the audio compressors, for instance, that amateurs have discarded because they couldn't solve R.F. feedback problems would probably pay for several ham shacks with deluxe equipment. Audio compressors aren't, of course, the only equipment subject to R.F. problems. Practically all solid-state accessory items used in any shack can experience R.F. interference problems, and the number of such accessory items is, in general, on the increase.

This article explores some of the steps that can be taken to eliminate R.F. feedback (in audio equipment) and R.F. interference problems (in other accessory equipment). Part of the material is a review of measures that have already been developed over the years to prevent such problems, while other parts of the article present some new ideas on the subject that may not be familiar to many amateurs. The article deals mainly with R.F. problems one experiences in the shack, but some ideas are applicable also, of course, to curing local hi-fi interference problems.

Two basic conditions must be present for R.F. problems to arise:

1. The R.F. must enter the unit that is being affected.
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This may sound like a complex way to state a thing that everyone knows, but it highlights the two levels at which R.F. problems can be tackled. The first, of course, is to pre-



vent the R.F. from entering a unit at all. But, if that is not possible, one has no choice but to tackle the second area of preventing the R.F. from affecting some component in a unit.

If one had the opportunity to construct the ideal shack, the thing to do would be to enclose it in a metal screen as a shield against external R.F. This is actually done in the case of the construction of some radio station studios and control rooms where such facilities must be co-located with a highpowered a.m. or f.m. transmitter. Although this is impractical for most amateurs to consider, the concept of the total enclosure should be kept in mind and carried down to the level of the equipment itself and the wiring between units. Accessory unit enclosures should provide good shielding. Enclosures that have wooden side panels instead of metal ones, for instance, may look great, but as far as R.F. is concerned, it is just like having a circuit on an open breadboard. If one suspects that inadequate shielding

WITH IMAGINATION AND PERSISTENCE

HAMS CAN LICK STRAY R. F. PROBLEMS

maybe the cause of a problem with a unit, one test that can be made is to wrap up tightly the entire unit with several layers of ordinary household aluminum foil. This test, of course, does not allow for the use of any control knobs while testing, and one has to be careful that the aluminum foil does not short out any connections. Nonetheless, it is a very good method to check the adequacy of the shielding on any small accessory unit.

If the shielding test cures the problem, then one must find out why the present enclosure, if it is a metal one, does not shield adequately or provide a unit with a properly shielded enclosure. In the case of a metal enclosure, just because it is screwed together doesn't mean all the sides are making good electrical contact. One should

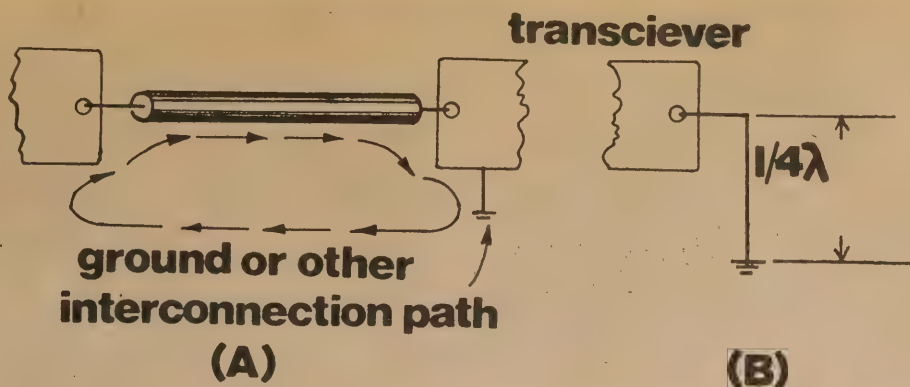


Fig. 2 — The ground loop or other loop-type formation at (A). A "ground," which may not be a ground when a resonant length of wire is used, is shown at (B).

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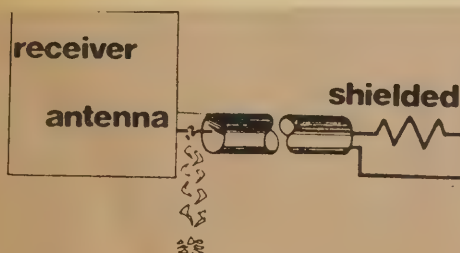


Fig. 1 — Using a receiver to check shielding effectiveness of a cable. The receiver is first set to base noise level using a terminating resistor only across its antenna terminals and with its a.g.c. off. The cable, terminated in its characteristic impedance by a resistor, is then connected. The increase in noise level is then a measure of effectiveness of the cable shielding.

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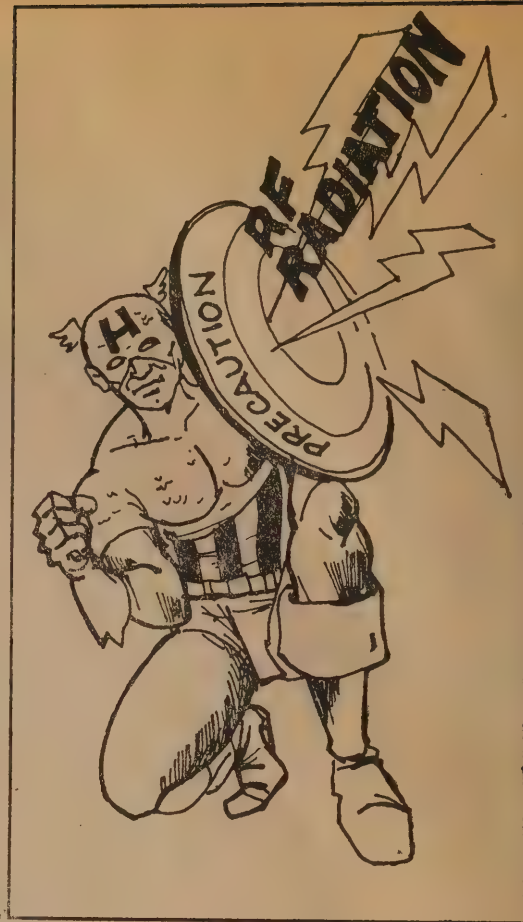
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If the shielding test cures the problem, then one must find out why the present enclosure, if it is a metal one, does not shield adequately or provide a unit with a properly shielded enclosure. In the case of a metal enclosure, just because it is screwed together doesn't mean all the sides are making good electrical contact. One should make a careful visual check to see that all the sides have snug fits against each other and that paint, etc., does not prevent a good metal-to-metal contact. If one is using a snap-together metal enclosure without screws, the obvious thing to try is screwing it together. Many enclosures even when screwed together still have gaps between some edges due to manufacturing tolerances. These gaps can be closed in a variety of ways depending on their size and the aesthetics one wants to preserve. Thin copper sheeting, folded over once, can be inserted between some gaps in a force-fit fashion. There are also a number of metallic tapes that are excellent to cover gaps. One tape made by 3M (3M type 24) from tinned copper is designed specifically as a shielding tape. Various electronic supply houses carry it, although it is not inexpensive. Various chrome and stainless tapes sold for automotive repair or decorative work are also usable.

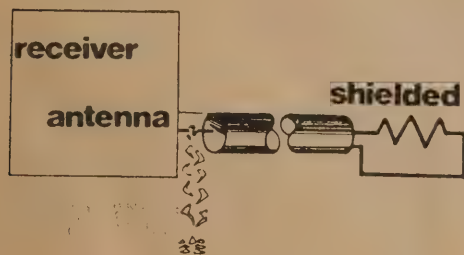


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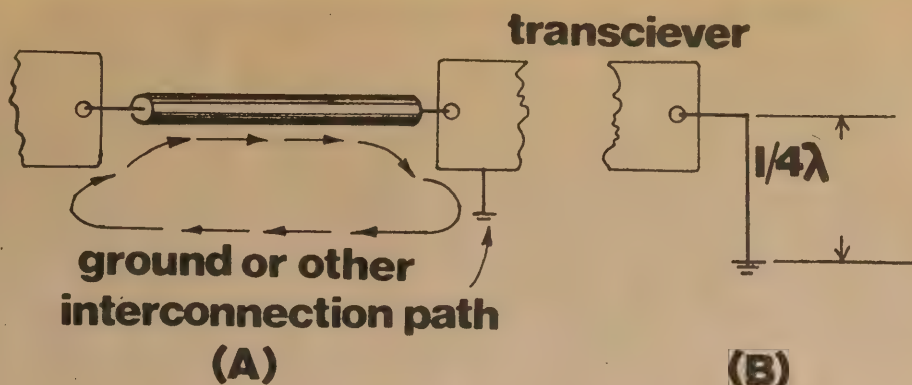


Fig. 2 — The ground loop or other loop-type formation at (A). A "ground," which may not be a ground when a resonant length of wire is used, is shown at (B).

In the case of partially metallic or non-metallic enclosures where one wants to preserve the outer enclosure because of its appearance, but where shielding of the internal electronics is needed, some form of internal shield can be tried. Shielding tape is a possibility or very fine metallic screening can be used. The metallic screening should be electrically connected to form as much of a total screening surface around the internal electronics as possible.

The aluminum foil test described for small enclosures also applies to audio or control leads that might be picking up R.F. Cut a narrow, long piece of aluminum foil and wrap it around a cable in partially overlapping turns. It should be connected to ground at one or both ends of the cable run. A point that sometimes is missed is that audio cable, like coaxial cable, has varying percentages of shield cover. The amount of shield cover on an audio lead that is necessary to prevent casual hum pickup may be inadequate to prevent some R.F. pickup. Unfortunately, the audio cable that one is likely to pick up at the local emporium will not contain any specifications as to shield coverage. The best thing to do if inadequate cable shielding is indicated is to replace the cable with the best quality shielded wire one can obtain made by a major manufacturer (Belden, Alpha, Dearborn, etc.). One can also try replacing shielded audio cable with miniature coaxial cable such as RG-174U. If one would like to go a step further and even investigate the relative shielding effectiveness of various shielded wires, the simple test setup of figure 1 can be used.

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note: For line currents up to approximately 15a enclosure

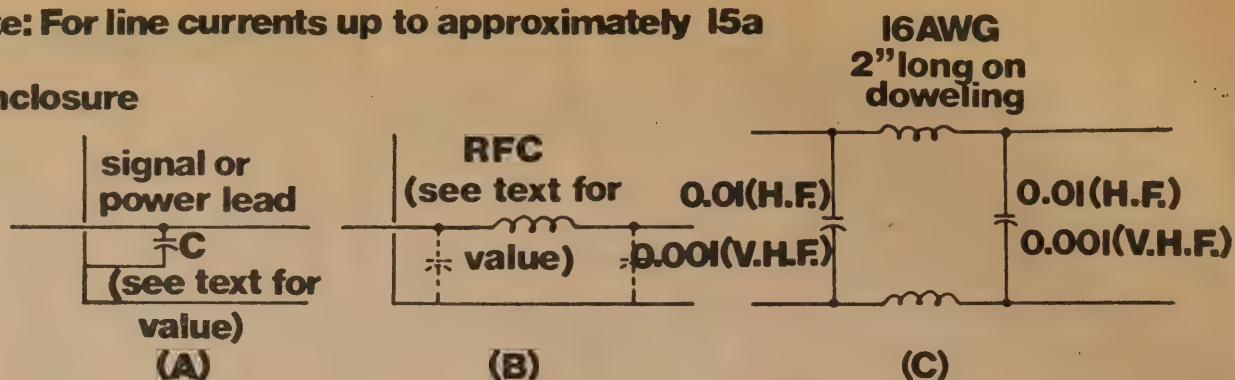


Fig. 3 — Illustrations of simple bypassing and filtering for low level signal leads, power leads or control leads are shown at (A) and (B). A typical brute-force a.c. line filter is diagrammed at (C).

approach of R.F. chokes, bypass capacitors, filters, etc. These can be applied to audio signal leads, control leads and power leads. Some of the simple filter techniques are illustrated in figure 3. The key to making these simple techniques effective lies in choosing the proper value components for the frequency involved and/or careful placement of the components in a unit. For instance, for simple capacitor bypassing of a low impedance circuit one might progress from a .05 uF ceramic disc capacitor in the 80 meter band to a .001 uF capacitor on 2 meters. As shown in figure 4, however, the effectiveness of capacitor by-

passing is greatly influenced by lead length. This effect is often a disadvantage if one wants to have effective R.F. bypassing over a wide frequency range, but it can be turned into a slight advantage sometimes when only a single band is involved. One can then tailor the lead length for maximum effectiveness on one band. There is no way to calculate the exact lead length to use in the latter case; it is just a tedious matter of cut and try. Note also from figure 4 the advantage of feedthrough capacitors over disc ceramics for bypassing. Especially at v.h.f. frequencies, it is well worthwhile to expend the effort to find feedthrough capacitors and to use them

instead of ordinary capacitors.

When using R.F. chokes, either alone or in conjunction with a bypass capacitor, one must also choose the choke inductance value for the frequency range it is desired to cover. It is best to follow the manufacturer's recommendation in this regard. For instance, the following is a listing for the commonly available J.W. Miller line of chokes:

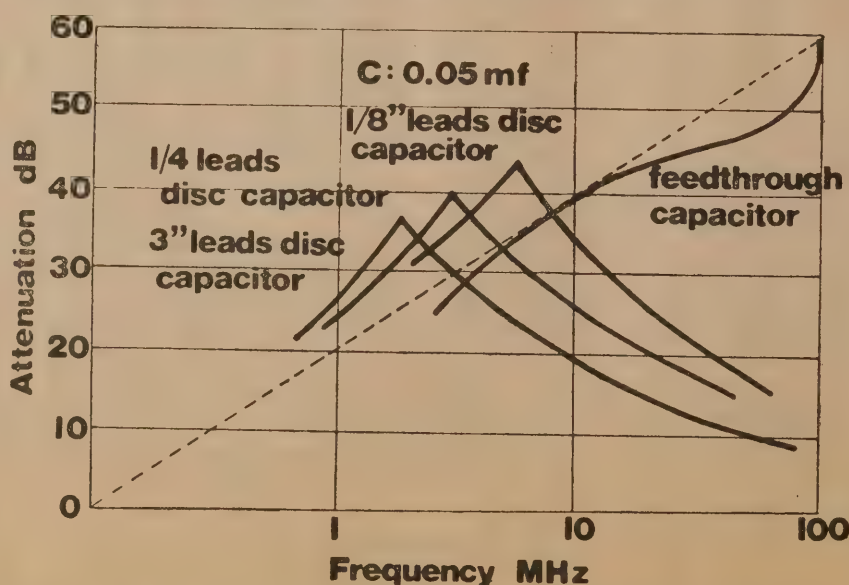
Type	Frequency Range (MHz)	Micro-Henries
RFC-14	7-20	84
RFC-21	15-30	38
RFC-50	30-90	8.2
RFC-144	75-180	1.7

One can also home-brew chokes by winding a ferrite core and then checking the self-resonant frequency of the choke using a griddip meter. In this case, the choke should be wound so the self-resonant frequency is slightly higher than the desired operating frequency. This is to account for capacity-to-ground effects when the choke is installed, which will tend to lower its resonant frequency. A choke for two meters, for instance, might be initially wound to resonate at 160 MHz.

If one cannot prevent R.F. from getting into a unit, then there is no choice but to cure the problem at the point where the R.F. interacts with some component in the unit. Invariably, for solid-state audio equip-

(Page 33 pls.)

Fig. 4 — The real effectiveness of capacitor bypassing is shown by this graph. The dotted line would be a perfect capacitor. Note that a feedthrough type capacitor comes closest to the ideal bypass.



INTERVIEW...

Mayor-ham
Gerry Angeles:
"Blending
amateur
radio with
public
service
was never
easy at the
beginning.
Putting premium
on public
service was
equally
misread
by many."



licenses (well, they are on their way for a Class C license) they can thus operate appropriate rigs. With me at one end and they at the other, joined by their respective constituents, information flow becomes faster, response to emergency situations also becomes immediate. The participation of our Municipal Development Officer, in this regard, is rather significant. With a net which we hope to set up soon, our MDO can very well come up or control

Republic of the Philippines
Ministry of Transportation and Communications
NATIONAL TELECOMMUNICATIONS COMMISSION
Quezon City

16 March 1984

Memorandum for: The Commissioner, NTC

Subject: Formation of Committee to Prepare Draft of Regulations Governing Radio Dealers and Manufacturers.

To rationalize the operation of radio dealers and manufacturers in the country particularly in the sale, purchase and construction of transmitters and transceivers and their relation to the proper usage of the radio spectrum, it is hereby respectfully recommended that a working committee be authorized to draft the necessary regulations and guidelines for consideration of the Commission.

In this connection, it is also recommended that the Working Committee be composed of the following members:

Heracleo L. San Juan Chairman
Alfonso Toto Legaspi Co-Chairman, Textron Corp.
Bienvenido Tesoro Electro-Digital Systems
Jose Elizaga Medalist Enterprises
Edgardo Silverio Corona International
Geminiano Mercado Miltech Industries, Incorporated
Col. Eliseo Rio Veterans Electronics Communications, Inc.
Antonio Flores A.M. Flores Enterprises
Rene Concepcion Concepcion Industries

The Committee shall submit its report to the Commissioner not later than May 31, 1984.

(SGD.) HERACLEO L. SAN JUAN
Acting Chief
Radio Regulations and
Licensing Department

APPROVED:
(SGD.) CEFERINO S. CARREON
Commissioner

an instructional program. Through the net, for instance, we can maintain or institutionalize a communication system with farmers. Recent developments in agriculture or agri-business can be easily relayed to them. From their end, whatever problems or doubts they have about their livelihood may be relayed to us through the Barangay Captain. We can talk with each other directly through this medium. The farmers, of course, are not our sole clientele. We have the home managers, even those in the industries can be covered. For instance, they need additional manpower, with referrals to us, we can get our employment bureau to react. I am trying to put things simply and graphically, here.

How would you assess the present state of amateurism in the country?

It's booming. The sad part of it, though, is that there are a big number of illegal users. This is somewhat a blot on whatever good things we may collectively achieve. There was a time I suggested to the NTC Commissioner that we try to adopt a system to check out these illegal users. The system would work somewhat like the registration of vehicles. That way we can have a physical count of rigs in the archipelago. With that we can assume what might be happening on the air. If only for that, I would like to think that all else can easily be made to fall into line.

Does that imply that you've been strict in enrolling members to MARA V?

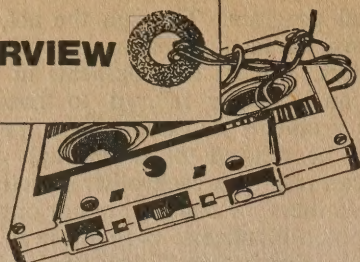
We have to be so. The first requirement that we ask of an enrollee is that he be an outstanding citizen in his community. This must be vouched by his barangay captain and attested by another outstanding person in the community. Next to this, we make it a point that he is a legal user — a ham in the strictest sense of the word. If one is very interested but does not have this qualification, we first assist him undertake the traditional NTC exams as well as meet the other administrative requirements. We would like to add that we demand trustworthiness since our operations are carried out even during sleeping hours. Trustworthiness may also be interpreted to mean the attention and care a ham will give his rigs.

What MARA V is doing is quite impressive. This is the first time TAR has known of a situation where a municipal government is utilizing amateur radio for developmental purposes. Have you not in any way infringed on, say, the commercial or government owned broadcast media's responsibility of designing similarly oriented programs?

That is farthest from our minds. What motivates us is simply the opportunity to use ham radio to its maximum. We felt that this could be a tool for rural development. So, we introduce some innovations in its usage without forgetting that our operations is governed by a set of rules and that we are covered by ethics.

Essentially, we remain to be honest with ourselves. We are hams with a definite purpose, if we may modestly state. ♦

INTERVIEW



HAM RADIO AS A MEDIUM FOR RURAL DEVELOPMENT

Gerry Angeles

There are different kinds of ham radio users. There are the bootleggers, the pirates, the hooligans and their other fastidious sort. As there are a lot of these split hairs who rend the airwaves as frequently as the wind blows on December evenings, there, too, are a greater number of hams whose scruples make hamming ever a wholesome hobby.

They, the scrupulous ones, would even go beyond the academic definition of amateur radio and infuse in it vigorous tones of service, passion and newer meanings and in the process elevate it to heights of noble humanitarianism.

A case in point, among the scrupulous ones, is Gerry Angeles. Mr. Angeles is no ordinary mortal, to start with. He is a government official, a veritable public servant being mayor of the municipality of Valenzuela in Bulacan.

Being a Mayor, it behooves upon him to live up to his covenant with his constituency. This he can practically dish out considering that he has his municipality's resources at his disposal defined by the mandate given him. But the Mayor is also a radio amateur.

Being a true-blue radio amateur, the mayor-ham now realizes that his constituency can be served far better if a stable communications network can be set up in his municipality.

He, thus, introduces amateurism to key citizens in Valenzuela.

The introduction is soon followed up with the organization of the Metro Amateur Radio Association of Valenzuela.

Although he founded this society which is more popularly known by its acronym (MARA V), he has remained to be in the shades, so to speak. He has kept the profile of a mere regular member. A break from the practice of assuming the "chieftainship" which traditionally goes to whoever initiates or organizes a gathering or a movement.

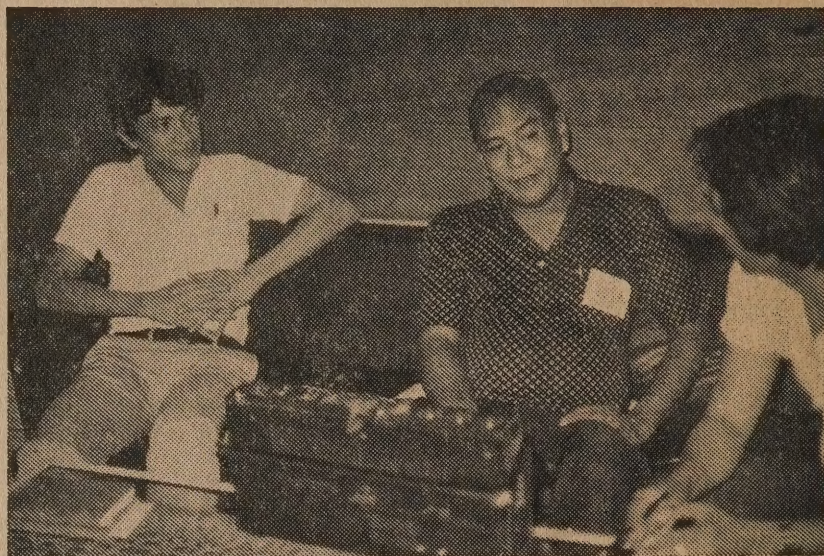
Before hamming, the good mayor had a taste of the police "network." In the '70s he had a feel of the CB. He never liked CB. "It did not mean so much to me . . . you know this 11-meter, it's too crowded, noisy . . ."

With the 2-meter he felt very much "at home." Sharply perceiving the usefulness of the medium, he performed a marriage between hobby and public service. The result was very encouraging.

Now he feels that there is much more to amateur radio than being a mere hobby.

You are putting so much premium on public service, will this not alter the essence of amateur radio as a mere hobby?

Blending public service and amateur radio was never easy at the very beginning. Putting more premium on public service was equally misread by many. In fact, introducing my concept did not immediately generate pleasant response. Later, though, when it was proven clearly



Valenzuela Mayor Gerry Angeles (center) with TAR Executive Editor Zoilo Chan (left) and Associate Editor Alfie Camua-Sy (right).

that amateur radio will not in any way be deprived of its essence, they took to my idea, even if gradually. Here, amateur radio remains to be a hobby, pure and simple. All we did was add some new meaning into it. Beam it at some new grounds which are not extraneous to what hams do every now and then. What makes the difference, perhaps, is the constancy we have adopted.

What do hams do every now and then that MARA V is now doing with constancy?

Whenever there are emergencies or calamities one can always find a ham contributing his share of goodness. Now, we have tied up our operations with the police, the barangay tanods and the disaster brigade. In other words our operations in this area is on a 24-hour basis. We maintain a daily 7:00 to 8:30 evening net not only for check-in purposes but also to summarize the day's situation in the municipality. We also have this traffic assistance project that goes on 24 hours daily. You know that Bulacan is the gateway to the north. Thus, it is not infrequent for our station to receive calls for assistance, some even request that they be monitored until they reach their destination.

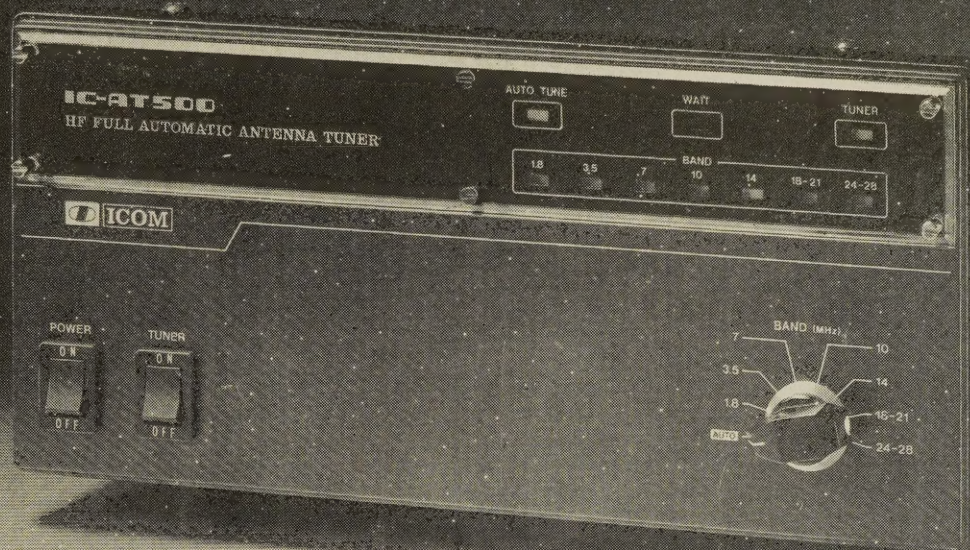
Where does rural development come into MARA V operations?

So far, we have just made a scratch on the crust of our operations. Going deeper now, we have barangay captains who are equipped with RLM licenses. Our Municipal Development Officer also have it. With their RLM

(Page 37 pls.)

HF FULLY AUTOMATIC ANTENNA TUNER

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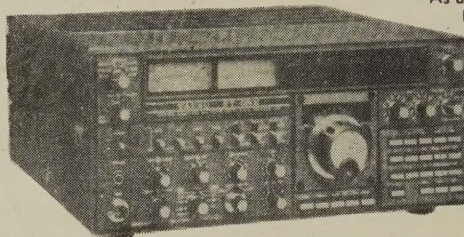
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FT-230R

YAESU — (FT-203R)



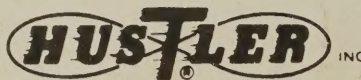
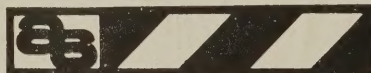
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